Can International Law Achieve the Effective Disarmament of Chemical Weapons?

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Chemical weapons are a threat to international security. According to an international convention, the Chemical Weapons Convention (CWC), all chemical weapons fall under a stringent and irreversible disarmament regime that seeks the abolition of the use and existence of chemical weapons altogether. The CWC is considered to be the first verifiable disarmament treaty; furthermore, it targets an entire category of Weapons of Mass Destruction (WMD).

Unfortunately there is a gap between the legal requirements of the CWC disarmament regime and its implementation. This gap between the theoretical and practical aspects of disarmament implies a practical, result-based approach to disarmament throughout this study; it raises doubts about the feasibility of chemical weapons disarmament under international law. The central question of this study is whether international law can achieve the effective disarmament of chemical weapons.

A background on the chemical weapons disarmament regime is provided in this study. The legal control of chemical weapons follows a clear evolution, from the ban on the use of chemical weapons in conflicts to the international consensus to disarm them altogether. Concerning the legal control for chemical weapons, questions arise about the type of instrument suited for effective disarmament.

As of August 2006 the CWC had been in force for nine years; it is considered to be a well-established treaty and benefits from a very broad membership. However, the disarmament of chemical weapons knows many political, technical and financial difficutlies. It is behind the schedule imposed by the CWC and weapons possessors struggle to meet the environmental and technical requirements provided in the CWC. Throughout this study these difficulties are examined and illustrated with case studies of the main weapons possessors. Such difficulties highlight numerous flaws in the legal regime, at the time of its constitution and during its implementation. Furthermore, they have serious implications for the credibility and authority of that regime.

The chemical weapons disarmament regime, as well as other traditional arms control and disarmament instruments, currently evolves in a changing international security environment that is characterized by new threats. The CWC is challenged by new national and international security policies which rely less on traditional legal instruments and more on alternative, political instruments. The role of treaties such as the CWC is questioned and challenged, which in turn threatens the continuation of and commitment in chemical weapons disarmament. This study concludes with an analysis of the evolution of the chemical weapons disarmament regime in this changing environment, and proposes alternatives and changes that are more suitable for achieving effective disarmament. While the weaknesses of the chemical weapons disarmament regime must be acknowledged, it remains a useful security tool; there are no grounds to question its existence entirely.

Introduction: the International Legal Control of Chemical Weapons

A. The problem of Chemical Weapons

Chemical weapons (CW) have been an abhorred method of warfare since they became available to states. They have been extensively used, especially during World War I, but have also been widely rejected as an instrument of warfare. CW have also been the object of control by international law for a long time. They now fall under a sophisticated legal regime, and within this regime, the elimination of CW is sought through disarmament. However, the control of CW remains a rather obscure and unknown topic in international law and in international public knowledge.

B. Aim of the Study: can International Law Achieve the Effective Disarmament of Chemical Weapons?

This study focuses on the international legal regime controlling CW, and more specifically, on the disarmament aspect of that regime. The content of this study is a comprehensive analysis of the current CW disarmament regime. It aims to determine whether international law can achieve the effective disarmament of CW. The Chemical Weapons Convention[1] (CWC) is the main instrument of the CW control regime. This study examines how this example of international law of arms control is implemented and the extent to which it can be and is enforced.

The CWC seeks the effective disarmament of a specific category of weapons. In that respect this study specifically focuses on how the CWC is implemented and succeeds at achieving effective disarmament. The author adopts a functional approach to the CW disarmament regime; the focus is thus on the utility of the rules to achieve the aims of their authors. Highlighted and questioned in this analysis is the suitability of traditional international arms control instruments to achieve effective disarmament.

To a certain extent, such a study of the CW disarmament regime points to more general and theoretical public international law and arms control law issues. For example, from an international security perspective, it examines the contribution of CW disarmament to improve security from Weapons of Mass Destruction (WMD).

[1] Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, opened for signature 13 January 1993, (entered into force 28 April 1997) ('Chemical Weapons Convention').

However, although such general issues are raised, the intent of this study is not to exhaustively examine the implications of or solutions to these issues. They are mentioned throughout this study as they are related, sometimes directly, to the CW disarmament regime. In that respect they place the CW disarmament regime within a more global framework. However, the CW disarmament regime is studied individually and from a practical, result-based, perspective. The study does not comprehensively examine the lessons and benefits of the CW disarmament experience for public international law and arms control law.

C. Scope of the Study: International Law of Arms Control, Disarmament and Chemical Weapons.

The central topic of this study is the current international law on CW. A definition of CW, of arms control and of disarmament is thus called for, arms control being the part of international law under which the CW disarmament regime falls.

Once this framework under which the CW disarmament regime falls is determined, the regime itself is considered. The relationship between the CW disarmament regime and its general public international legal framework and arms control framework is not specifically examined.

CW are defined by the CWC, which provides an extensive and technical definition of CW.[2] Such a definition is useful for the implementation of the convention, and particularly for the disarmament task. However, another, simpler definition can also be used: CW refers to the use of toxicants in war.[3]

The topic of CW immediately draws attention to the CWC, which is an arms control treaty and therefore a part of international law on arms control. There are various definitions of arms control and, by extension, of disarmament. Historically, in the Cold War arms control consisted in 'the rules for limiting arms competition, rather than reversing it [arms competition].'[4] It did not necessarily imply a reduction or limitation of arms, but rather a legal framework for armaments.[5] Now the concept of arms control has expanded to include all measures focused on reducing armaments.

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[2] Chemical Weapons Convention art 2.
[3] Julian Perry Robinson, 'Chemical and Biological Warfare' in Marek Thee (ed) *SIPRI Findings: Arms and Disarmament'* (1986), 179, 180.
[4] Jozef Goldblat, *Arms Control: a Guide to Negotiations and Agreements* (1994), 3. Goldblat, n 4,
[5] Micheal J Sheehan, 'Arms Control : Theory and Practice' (1988), 6.

The resulting proximity and frequent overlaps between the concepts of arms control and disarmament makes defining them a difficult task.

Some definitions distinguish arms control from disarmament. Such is the case with the United States Arms Control and Disarmament Agency (ACDA), which defines arms control as 'the limitation of the number and/or of certain types of weapons'.[6] The ACDA considers disarmament to be a 'far more comprehensive goal than the objective of arms control'. According to the ACDA, disarmament 'refers to the eradication of certain types or even all weapons'; it corresponds to the 'elimination of types or all weapons' whereas arms control is only a 'quantitative or qualitative limitations of weapons'.[7] This definition suggests that disarmament is a goal which can be set apart from arms control. Similarly, the United Nations Institute for Disarmament Research (UNIDIR) distinguishes between the two concepts. It states that 'arms control measures place political or legal constraints on the deployment and/or disposition of national security means'.[8] Disarmament, on the other hand, is defined as measures that 'seek to reduce the level of national military capabilities or to ban altogether certain categories of weapons already deployed'.[9] Other definitions, however, comprise disarmament within arms control. For example according to arms control expert Jozef Goldblat, arms control includes non-proliferation, disarmament, verification and confidence-building measures.[10] It is clear from these examples that there is no single, generally accepted definition of arms control or of disarmament. Whether disarmament is separate or a part of arms control is largely irrelevant in the study of CW disarmament. However, for practical purposes, disarmament is considered throughout this study as an arms control measure and as one component of the law of arms control.

It can be deduced from these definitions that arms control has a spill-over effect: restricting the growth of arms and thus maintaining the level of armaments, but it does not reverse the arms race. Disarmament, however, reverses the armament process by reducing the number and/or quality of armaments available. For the

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[6] The United States Arms Control and Disarmament Agency, *Arms Control and Disarmament Agreements* (1984), xxix.
[7] Ibid.
[8] S. Tulliu and T. Schmalberger, *Lexicon for Arms Control, Disarmament and Confidence-Building* (2004), 7.
[9] Ibid.
[10] Goldblat, n 4, 3.

purpose of this study this trait of disarmament influences the choice of a disarmament approach over a more general arms control approach.

Disarmament is only one aspect of the control of CW by international law. However, as noted above, this study is restricted to the part of that law which deals with the disarmament of CW. The author favours such a disarmament approach because CW are the object of the first verifiable disarmament regime. The CWC is the first 'real' disarmament treaty seeking to achieve CW disarmament under international control. In that respect the convention is usually praised by experts, and commentators as a 'unique achievement' and the 'first treaty of its kind'.[11] The French ambassador to the Conference on Disarmament (CD), the CWC negotiating body, describes the CWC as 'the first genuine multilateral disarmament'.[12] Because of its disarmament obligations, the CWC stands out from other arms control agreements. The CW legal regime is also the first to ban and eliminate an entire category of WMD, another novelty in the field of arms control.[13] Finally the chosen approach is also justified by the current circumstances since the CW disarmament should be drawing to an end, as will be examined with the CWC disarmament schedule. Such a disarmament approach to CW further suggests a functional analysis of this topic, which is suitable and corresponds to the definition and the nature of disarmament.

CW are thus the only category of weapons entirely banned and the object of a disarmament instrument, and the CWC is the first and only instrument imposing such an obligation. This disarmament regime is also reaching its climax at the time of this study. For these reasons the disarmament aspect of the international law on CW calls for a specific consideration. A careful study of the CW disarmament regime is called for before general lessons can be drawn from its achievement and eventually transferred to other areas of weapons control.

D. Method and Sources of International Law.

The study of CW disarmament is based mainly on an analysis of the primary sources of international law, mainly the CWC and similar conventions. Other sources

[11] Stephen J. Ledogar, 'Concluding Negotiations for the Chemical Weapons Convention: a Flexible Global Agreement Whose Time Has Come' (1993) 16, *Disarmament,* 42.
[12] Gerard Errea, 'The Outstanding Characteristics of the Convention on the Prohibition of Chemical Weapons' (1993) 16, *Disarmament,* 24, 25.
[13] Carl-Magnus Hyltenius, 'The Chemical Weapons Convention: A Great Achievement in Multilateral Disarmament' (1993) 16, *Disarmament,* 1, 12.

of international obligations which complete the CWC are also taken into account, particularly those arising in environmental law and from international organizations.

It can be noted that most of the literature on CW offers a comprehensive study of the CWC, or a study of the CWC within the larger framework of arms control. Breaking with that approach, the author restricts herself to the disarmament aspects of the CWC.

Overall CW disarmament remains mostly a national effort and much information comes from the governments of states concerned with disarmament, and in particular that of CW possessors. These secondary sources on CW disarmament are varied. National chemical demilitarization programs provide the bulk of technical information relating to CW disarmament and control. Sources also include the reports and analyses of technical bodies (scientific, medical, environmental agencies), of financial institutions and research institutes specialized in disarmament, strategic studies and security issues. However, even though information on CW disarmament has numerous sources, it remains scarce. Some of these secondary resources must be considered carefully, for they serve national interests and might be biased. Generally, in light of the specificity of CW matters, and especially of CW disarmament, resources for such a study are lacking. It can also be remarked that there are great differences between primary and secondary sources, the former relate little to practical disarmament issues, while the latter can be overly technical. The author favours primary sources over secondary sources, to the limited extent that primary sources provide sufficient information on CW disarmament. This research effectively covers the development of CW disarmament up to August 2006. The research is presented in five separate chapters.

E. Contents of the Dissertation.

Chapter 1 provides a brief history of the CW ban, from the prohibition of CW use to the complete ban of CW, and of the subsequent CWC negotiations. A more detailed justification of the disarmament approach to CW and the implications of such an approach are also examined in this chapter. As noted, the study focuses on the Chemical Weapons Convention (CWC). Details of its disarmament regime are examined in chapter 2. The CWC is in its eighth year of existence and a short overview of its implementation is also called for. The implementation of the regime is characterized by the difficulties encountered by the handful of states concerned with

CW disarmament. Chapter 3 examines these difficulties, which highlight the large gap between the CWC and effective disarmament. This gap is marked by technical and financial impracticalities between the letter of the treaty and the real situation of CW arsenals. A specific case study of the CW disarmament practice of the Russian federation- the largest CW possessor- further underlines the gap created by the CWC in the area of disarmament requirements, and is covered in chapter 4. Chapter 5 draws conclusions regarding the successes and failures of the international CW disarmament regime. This last chapter also studies the CW disarmament regime in the context of the current international security environment, characterized by changing threats. This new tendency challenges the role of traditional arms control instruments like the CWC and diminishes its role. Finally this chapter proposes alternatives to remedy the failures or legal weaknesses of the CWC. Not all the aspects of the international legal control on CW, and specifically its disarmament aspect, are questioned; the focus of the author's criticism mainly relates to the 'Geneva Process' from which the CWC originates.

Chapter 1: The Foundations of the Disarmament of Chemical Weapons: From Prohibition of the Use of Chemical Weapons to the Principle of Chemical Weapons Disarmament.

Introduction

This chapter introduces the CW disarmament regime with a short history of the ban on CW, which has resulted in a consensus to disarm CW. This study focuses on to the drawing up of the international norm to control, or ban, CW. This control of CW highlights the difference between the restriction on the use of CW and the prohibition of CW altogether. A distinction is made throughout this chapter between these two aspects of the CW ban. The first step of the ban is the restriction on the use of CW under international law. The second step is the consensus to renounce CW by eliminating them. This consensus is the basis of the CW disarmament regime.

The first section provides a brief international legal background of the current ban on CW. The early control on the use of CW eventually evolved into the consensus to eliminate CW, in order to enforce the prohibition on the use of CW and achieve an effective ban. The second section examines the emergence of that consensus and the arguments supporting the disarmament of CW. In the third section the implications of the disarmament of CW are analyzed. The fourth section examines the choice of the appropriate instrument for the disarmament of CW. Following two decades of negotiations the ban on CW has brought about the conclusion of the CWC and the current CW disarmament regime. A brief overview of these negotiations is provided in the fifth section. This study concludes with the main difficulties encountered during those negotiations.

Section 1: The Early Ban on Chemical Weapons: the Prohibition to Use Chemical Weapons in Armed Conflicts.

This section examines how and why CW were banned in the first place. The ban on CW is usually introduced with the notorious example of the use of chemical warfare during the First World War, which resulted in 1.4 million casualties. Yet the ban on the use of CW has a 'long history' and begins earlier.[14]

[14] Ibid, 2.

The ban on CW began with conventions prohibiting the use of CW in international armed conflicts. The 1899 and 1907 Hague Conventions on the Laws of War on Land attempted to restrict the use of poisonous or 'noxious' gases in armed conflicts.[15] Similarly, the aborted 1922 Washington Disarmament Treaty attempted to prohibit the use of CW.[16] The culminating point of these earlier efforts was the 1925 Geneva Protocol,[17] until the adoption of the CWC, the main instrument dealing with the use of CW.

The Geneva Protocol remains in force; it prohibits the use of CW in armed conflicts between its member states. As opposed to earlier restrictions on the use of CW, its wider scope covers the use of 'asphyxiating, poisonous or other gases, and of all analogous liquids, materials or devices'[18], which are determined 'according to their toxic effects on man, animal and plant.'[19]

The Geneva Protocol was Europe's response to the extensive use of CW during the First World War. It is based on humanitarian considerations; CW are deemed too cruel, causing unjustified suffering and are thus banned as a method of warfare.[20] The Protocol is also largely founded on the preceding humanitarian laws of war, which it embodies.[21] The justification for such a ban can therefore be attributed to the abhorred effects of CW on human beings.

Unfortunately the Geneva Protocol is generally considered a weak and limited instrument, with numerous restrictions and a limited scope. The text of the Protocol states that it applies 'in war' and that its contracting parties 'agree to be bound as between themselves according to the terms of this declaration'. The ban applies between its member states only and in the limited context of international armed conflicts, something deplored by various authors.[22] Arms control expert Jozef

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[15] *Hague Declaration II Concerning Asphyxiating Gases*, annexed to the 1899 *Hague Regulations with Respect to the Laws and Customs of War on Land ('Hague Convention II')* and *Hague Regulations* annexed to the *Hague Convention Concerning the Laws and Customs of Land Warfare ('Hague Convention IV').* See also The United Nations Department for disarmament Affairs, *The United Nations and Disarmament'* (1985), 132.
[16] Coit D Blacker and Gloria Duffy (eds), *International Arms Control: Issues and Agreements* (1984), 140.
[17] *The Geneva Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or other Gases, and of Bacteriological Methods of Warfare*, opened for signature 17 June 1925, LNTS 94, (entered into force 8 February 1928) ('Geneva Protocol').
[18] Geneva Protocol art 1.
[19] Goldblat, n 4, 91.
[20] Ibid, 188-190.
[21] The United Nations Department for disarmament Affairs, *The United Nations and Disarmament'* (1985), 132.
[22] Goldblat, n 4, 91-2 and Blacker and Duffy (eds), n 16, 140.

Goldblat points out that this theoretically allows the use CW against states not member to the Protocol or if the conflict is not considered a 'war'.[23] Although he also considers these possibilities 'highly unlikely', the wording of the Protocol remains lacking. Furthermore, he highlights that the threat of CW use is not covered by the Protocol and finally, that there is no mechanism to verify compliance with or enforce the Protocol.[24] The Protocol is criticized for providing 'a false sense of security'.[25]

In addition to these weaknesses, numerous states have placed restrictions on the scope of the Protocol. They have adopted reservations allowing them to use CW in retaliation should CW be used against them first.[26] The Protocol is therefore known as a 'no-first-use' type of instrument.[27] Its strength is further reduced by a restrictive interpretation of its scope. States producing CW, and specifically the United States, have maintained for a long time that the Protocol does not apply to the use of non-lethal agents nor of anti-plants agents such as defoliants.[28] Although this view is not shared by most member states to the Protocol, it can be concluded that the Protocol suffers from many limitations.

On top of the Protocol's weaknesses, its authority has been weakened by known or suspected violations.[29] There were strong suspicions that CW were used by Italy in the Ethiopian war.[30] There have been allegations that CW were used in Laos, Cambodia and Afghanistan although these suspicions have never been confirmed.[31] More unproved allegations charge the use of CW in Korea, Indo-China, China and Yemen.[32] Unfortunately the lack of a verification mechanism in the Geneva Protocol prevented the confirmation of such allegations.

In spite of this feeble norm, none of the CW produced between the two World Wars were used. The Second World War was thought to be a 'chemical war' but

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[23] Jozef Goldblat, 'The Geneva Protocol of 1925 and the Ban on Chemical Weapons' in Marek Thee (ed), *SIPRI Findings: Arms and Disarmament'* (1986), 351.
[24] Ibid, 353-4.
[25] Emeka A. Azikiwe, 'The Chemical Weapons Convention: An Assessment of Future Implications' (1993) 16, *Disarmament*, 125-6.
[26] Golblat, n 6, 277-9; see also Arms Control and Disarmament Agency, n 6, 15-18.
[27] Blacker and Duffy (eds), n 16, 140.
[28] Arms Control and Disarmament Agency, n 6, 10.
[29] John Gee, 'The Destruction, Removal or Rendering Harmless of Iraq's Chemical Warfare Capability' (1992) 15, *Disarmament*, 77 and Hyltenius, n 13, 5.
[30] Arms Control and Disarmament Agency, n 6, 9.
[31] Blacker and Duffy (eds), n 16, 144.
[32] SIPRI, *The Problem of Chemical and Biological Warfare: CB Disarmament Negotiations, 1920-1970*, (1971) vol 4, 196-201, 234-8 and 243-7.

against all expectations CW were not resorted to.[33] This resulted in an ongoing controversy as to why CW were not used during the Second World War, and a debate about the role of the Geneva Protocol's in preventing CW from being used.[34] It is a debate that continues.[35] Supporters of the Geneva Protocol, mainly Russia, have maintained that this could be attributed to the authority and success of the Geneva Protocol. Other states, mostly European states and the United States, have argued that CW were not used in the Second World War only because circumstances were unfavourable to use CW. Therefore the extent of the Protocol's role in keeping states from resorting to CW has remained uncertain.[36]

Although the controversy over the explanation why CW were not used during the Second World War is of historical interest, it was determining for the conclusion of the CWC. It is significant for the adoption of a norm to disarm CW, since the Protocol does not attempt to disarm CW. Whether the Protocol is sufficient to enforce the ban on the use of CW determines the need to adopt another ban on CW.

The same states which diminish the role of the Geneva Protocol in the Second World War support a stronger ban on CW. They argue that if the Protocol is insufficient to enforce the ban on CW then another ban must be sought. Other states, led by Russia, argue that the Protocol was successful in keeping CW from being used in World War II and that it is sufficient to enforce the ban on the use of CW. These supporters of the Protocol have subsequently opposed the conclusion of another ban on CW. These states have also suggested that the Geneva Protocol could be modified and strengthened to adapt to new circumstances.[37] The role of the Protocol in World War II and the subsequent debate on the need to keep, replace or strengthen it has influenced the decision to conclude another ban on CW.

The existence of the CWC shows that an agreement was reached on the need to negotiate another, more stringent ban. In spite of this and even with the entry into force of the CWC in 1997, there are ongoing efforts to increase participation in the Geneva Protocol and strengthen it. States with reservations to the Protocol are

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[33] John Ellis van Courtland Moon, 'Chemical Weapons and Deterrence: The World War II Experience' (1984) 8 (4), *International Security*, 4.
[34] SIPRI, *The Problem of Chemical and Biological Warfare: CB Disarmament Negotiations, 1920-1970,* (1971) vol 4, 320-1.
[35] OPCW, *Genesis and Historical Development* <http://www.opcw.org/en/CWC_History.html> as of 8 July 2005 and Hyltenius, n 13, 5.
[36] *SIPRI, The Problem of Chemical and Biological Warfare: CB Disarmament Negotiations, 1920-1970*, (1971) vol 4, 222.
[37] Ibid, 247-8.

encouraged to withdraw them.[38] The UN regularly reiterates its support for the Protocol and the need to strengthen it. Resolutions entitled 'Measures to uphold the authority of the 1925 Geneva Protocol' have recently been adopted by the General Assembly, calling for 'its observance and for the removal of the reservations'.[39] The latest resolution requests that the Secretary-General submit a report on the implementation of these measures.[40]

The efforts to support and strengthen the Protocol are a waste of time and resources. As one author points out, the Protocol is now of 'historic significance.'[41] Once it has been supplanted by a more efficient ban on CW, such efforts appear unjustified and unnecessary. This criticism is founded on the fact that the CWC has entered into force and has imposed a much more stringent ban on CW. Concerning participation in the Protocol, efforts to expand its membership appear useless since but for six countries, all members of the Protocol are also members of the CWC, and are bound by its stricter regime. Concerning the strength and authority of the Protocol, the use of CW in the 1980s[42] and the previous allegations of CW use establish the failure of the Protocol to enforce the ban on the use of CW. Finally from a disarmament perspective the Protocol is irrelevant; it does not contribute directly to the disarmament of CW. In spite of this the Protocol remained the main norm on CW until negotiations on the CWC began in the 1970s. Until then the ban on CW only corresponded to restrictions on the use of CW only; no efforts were made to disarm CW or even limit chemical warfare.

The period following the Second World War until the negotiations on the CWC was marked with contradictions. On the one hand it was characterized by a chemical arms race which took place mostly between the United States and the Soviet Union, although most European countries experimented with or considered chemical warfare. On the other, the strength of the ban on CW use increased beyond the scope of the norm embodied in the Geneva Protocol.

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[38] SIPRI, *SIPRI Yearbook 2003, Armaments, Disarmament and International Security,* 646; see, eg, Conference on Disarmament, 'Statement Made on 17 June 2000 by Mr. Vladimir Putin, President of the Russian Federation', Doc CD/1619 (2000).
[39] '*Measures to uphold the authority of the 1925 Geneva Protocol*', GA Res 55/33, 57/62 and 59/70 UNGA, 55th, 57th and 59th sess, UN Docs A/Res/55/33 J (2000), A/Res/57/62 (2002) and A/Res/59/70 (2004).
[40] '*Measures to uphold the authority of the 1925 Geneva Protocol*', GA Res 59/70 UNGA 59th sess., UN Doc A/Res/59/70 (2004).
[41] Goldblat, n 4, n 6, 92.
[42] United Nations, *The United Nations and Disarmament* (1985), 113-4.

Since there was no ban or limitation on CW production and possession CW armament took place from World War I until well after World War II; the Protocol left a legal vacuum which made the chemical arms race possible. Before 1945 CW developments were justified by the potential need to use them in war. After 1945 CW were a part of the arms race characteristic of the Cold War, and which did not end until the late 1980s. The US and the Soviet Union extensively pursued CW research, development and production. The chemical arms race was significant in terms of quality and quantity.[43] The production of chemical agents during the Cold War was estimated at hundreds of thousands of metric tons.[44] CW were also diversified and sophisticated, for example with the discovery of nerve agents in the 1930s and 1940s[45] and the discovery of binary CW in the 1960's.[46]

While CW arsenals grew the norm on the prohibition to use CW was also both strengthened and broadened. In 1969 the UN General Assembly, in resolution 2603A expressed the idea that the

> Geneva Protocol embodies the generally recognized rules of international law prohibiting the use in international armed conflict of all biological and chemical methods of warfare[47]

Resolution 2603A also 'declares as contrary to the generally recognized rules of international law,' as embodied in the Protocol, the use of 'any chemical agents of warfare' and 'any biological agents of warfare'. The language of this resolution extends the prohibition on the use of CW beyond the Geneva Protocol's scope by mentioning 'any chemical agents of warfare' and strengthens the prohibition embodied in the Protocol.

The prohibition on the use of CW in armed conflict has the status of customary international law. Goldblat states that 'According to a widely shared

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[43] SIPRI, *SIPRI Yearbook 1968/69: World Armaments and Disarmament,*115, 119; Julian Perry Robinson, Chemical and Biological Warfare' in *SIPRI Findings*, n 2, 180-184.
[44] Ooms, 'Verification of the Destruction of Stockpiles of Chemical Weapons' in SIPRI (ed) *Chemical Weapons: Destruction and Conversion* (1980) 123, 124.
[45] *SIPRI Yearbook 1968/69*, 119 and Ronald Brecher, 'Nerve Agents' (2004-5), 16 (6), *HazMat Management,* 44.
[46] Alva Myrdal, *The Game of Disarmament: How the United States and Russia Run the Arms Race* (1976), 286.
[47] Question of Chemical and Bacteriological (biological) Weapons, UNGA Resolution 2603 A 24th sess. (1969).

opinion, the Protocol is already part of customary law';[48] the SIPRI expresses the idea that the debate on CW 'increases the force of the international customary law prohibiting the use of CW.'[49] The customary value of this norm is now casually reiterated in the literature on CW.

However, even though in retrospect it is easily accepted that the prohibition to use CW has customary value, the formation of that custom is unclear[50] and poorly documented. The language of the GA Resolution 2603A suggests that the prohibition on the use of CW has customary value. The intent of the states which sponsored this resolution, mainly non-aligned states, but also Sweden, is to formalize what they perceived to be an international custom.[51] Furthermore, Goldblat points that other GA resolutions have stressed 'the necessity for strict observance of the principles and objectives of the Protocol by *all* states'.[52] This application of the Protocol's norm to non-member states further suggests that the norm embodied in the Protocol has become a custom.

The endorsement of the custom on the prohibition to use CW can be attributed to the UNGA resolutions which reiterate, interpret and extend this prohibition beyond the Protocol's scope. Finally, the formation of this custom can also be attributed to the practice of refraining from using CW when they were available. Unfortunately even though the prohibition was strengthened and extended the control of CW is limited to the use of CW in armed conflicts.

Numerous conclusions can be drawn from the early history of the control on CW. The outcome of the ban on the use of CW is toned down. On the one hand, efforts were made to restrict the use of CW, mainly with the Geneva Protocol, which reflects the international concern about chemical warfare. Although this norm has gained much strength, it suffers severe drawbacks.

The early control of CW focuses on the use of CW only, not on CW themselves. The control on the use of CW did not prevent the chemical arms race, or suspicions that the norm had been repeatedly violated. It can be concluded from this early experience of the ban on the use of CW that more was needed to enforce such a ban and obtain an effective prohibition of the use of CW in armed conflicts.

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[48] Goldblat, 'The Geneva Protocol of 1925' in *SIPRI Findings*, n 23, 352.
[49] SIPRI, *The Problem of Chemical and Biological Warfare: CB Disarmament Negotiations, 1920-1970,* (1971) vol 4, 222.
[50] SIPRI, The Problem of Chemical and Biological Warfare: CBW and the Law of War (1973) vol 5, 9.
[51] *The United Nations and Disarmament: 1945-1970*, (1970), 369-70.
[52] Goldblat, 'The Geneva Protocol of 1925' in *SIPRI Findings*, n 23, 352.

The weaknesses and failures of the Geneva Protocol especially suggested that a stronger instrument was necessary. In turn this hinted that in order to enforce the ban on the use of CW, the elimination of CW was required. The elimination of CW can therefore be seen, in the author's view, as a law-enforcement measure intended to ensure compliance with the ban on the use of CW. Unfortunately it highlighted that 'the question of CW and chemical warfare was considered intermittently in the 1950s' and 1960s''[53] This neglect is usually attributed to the use of nuclear weapons at the end of World War II, which overshadowed the question of CW.[54] As a result, it was not until negotiations on a chemical weapons convention began in the 1970s', that a consensus on the need to eliminate CW emerged. The arguments which founded this slowly emerging consensus explain and justify the need to disarm CW.

Section 2: The Emergence of a Consensus on the Disarmament of Chemical Weapons

This section presents the arguments and factors which explain the international consensus for the elimination of CW and which spurred the disarmament of CW. The proponents of this consensus argue that the elimination of CW is necessary to enforce the ban on the use of CW and that such a ban calls for a stronger instrument. This section therefore aims to explain the link between the consensus to eliminate CW and the need to enforce the ban on the use of CW. These two endeavours resulted in the negotiation of the CWC.

The arguments for the elimination of CW reflect the view of a majority of states which were opposed to chemical warfare. Their arguments were largely based on military and political considerations. However, even though the consensus to eliminate CW had a solid foundation, it was reached slowly and with difficulty. The renunciation of CW as a means of warfare was not shared by all states; some were unwilling to abandon the right to use and possess CW.

The arguments of states supporting chemical warfare are first presented in this section, followed by the arguments supporting the elimination of CW. Finally, the historical circumstances and factors which have contributed to the disarmament of CW and spurred the conclusion of a stronger ban are briefly presented.

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[53] United Nations, *The United Nations and Disarmament* (1985), 108.
[54] SIPRI, *The Problem of Chemical and Biological Warfare: CB Disarmament Negotiations, 1920-1970*, (1971) vol 4, 221.

A. The Arguments Supporting the Acquisition and Possession of Chemical Weapons

While a consensus to eliminate CW emerged in international opinion, a minority of states remained reluctant to give up CW as a means of warfare and argued for the need to keep them and perhaps resort to them. These states, among them CW possessors, expressed their intention to retain CW, which was then permitted under international law. Their arguments for seeking or keeping CW challenged the consensus to eliminate CW and were an obstacle to negotiations on a CW ban.

States supporting the acquisition and possession of CW invoked the deterrent and retaliatory capability of CW to justify their position.[55] CW deterrence relied on the military and political usefulness of CW possession; it was based on the assumption that a state would not attack a CW possessor for fear of the consequences of the use of CW in retaliation ('retaliation in kind'). Accordingly with to the Mutually Assured Destruction (MAD) doctrine, deterrence relied on the destructive damage of CW, and on the assurance that they can either cause more harm than the advantages gained by attacking, or cause the mutual destruction of both adversaries.[56] In that respect, CW were assimilated with nuclear weapons; the principles of the former were simply extended to CW.[57]

CW deterrence had a lot of weight and was thought to be the main argument justifying CW possession.[58] Supporters of chemical deterrence argued that CW were a 'tempting deterrent' because they were 'highly threatening to an adversary', they were effective and they were easily obtainable.[59] Therefore, if only among possessors, CW were deemed to be a 'powerful' deterrent.[60] Finally, the deterrence argument was further supported by the belief that deterrence had been successful in keeping CW from being used in WWII.[61]

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[55] Arms Control and Disarmament Agency, n 6, 121 and SIPRI, *SIPRI Yearbook 1969/70: World Armaments and Disarmament,* 189.
[56] Robert O'Neill and David N Schwartz, *Hedley Bull on Arms Control* (1987), 252.
[57] Lundin, 'Confidence Building Measures and a Chemical Weapons Convention' in SIPRI (ed) *Chemical Weapons: Destruction and Conversion* (1980) 139, 146 and Brad Roberts, *Chemical Disarmament and International Security* (1992).
[58] O'Neill and Schwartz, n 56, 253.
[59] Charles C Flowerree, 'Current Chemical Weapons Proliferation' in Trevor Findlay (ed), *Chemical Weapons and Missile Proliferation, with Implication for the Asia/Pacific Region* (1991), 9, 10.
[60] Ibid.
[61] John Ellis van Courtland Moon, 'Chemical Weapons and Deterrence: The World War II Experience' (1984) 8 (4), *International Security*, 31 and O'Neill and Schwartz, n 56, 253.

The deterrent capability of CW has been argued on two notable occasions to justify the possession of CW. CW deterrence and retaliation were argued at the occasion of negotiations for a US-USSR bilateral ban on CW. The US and USSR proposed to keep two percent of their respective CW capability for use in retaliation.[62] It has been argued that they only intended to keep CW and their production capability until all other possessors had committed to renounce and disarm CW. From the two powers' perspective, the proposal was therefore a refusal to unilaterally commit to total disarmament without assurances that other states would renounce CW as well.[63] Such a proposal was, in their view, an expression of their support for a multilateral convention on CW.[64] In that respect retaliation with CW and deterrence from CW through possession was perceived as a security assurance.

Acquisition and possession of CW for deterrence and retaliation was also invoked by non-possessors, and in particular by Arab countries neighbouring Israel.[65] These states justified CW possession as a necessity to ensure their national security against a threatening –and possibly nuclear-armed- neighbour.[66] A CW capability was believed to keep both regional and other enemies (especially nuclear powers) from attacking.[67] As a consequence these countries expressed reluctance to join the ban on CW. Their views were expressed during the 1989 Paris Conference on the Prohibition of Chemical Weapons.[68] However, they were not widely shared, even among developing countries.[69] They were not reflected in the Final Document of the conference where states unanimously expressed their support for the complete elimination of CW.[70]

In these two examples CW deterrence was clearly seen as the main argument to retain or acquire a CW capability. However, acquisition of CW in the Middle East has also been attributed to the tense state of affairs in the region, as well as to political

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[62] Goldblat, n 4, 98.
[63] Arms Control and Disarmament Agency, n 6, 121.
[64] Goldblat, n 4, 99.
[65] Flowerree, n 59, 9-10.
[66] Ibid, 10-11.
[67] OPCW, *Genesis and Historical Development* <http://www.opcw.org/en/CWC_History.html> as of 8 July 2005.
[68] Goldblat, n 4, 102.
[69] Prakash Shah, 'The Chemical Weapons Convention: A Third-World Perspective' (1993) 16, *Disarmament*, 88, 90.
[70] *Final declaration of the Paris Conference on the Prohibition of Chemical Weapons*, adopted in Paris on 11 January 1989, Conference on Disarmament Doc CD/880, paras 1, 4 and Goldblat, n 4, 102.

and cultural factors.[71] Concerning the US-USSR bilateral proposal, the deterrence argument was perceived as an attempt by the great powers to impose their will on the majority of States and as an abuse of political leverage.[72] More than once the two powers' deterrence argument was attributed to their reluctance to give up CW capabilities and to their intention of retaining CW.[73] There was clearly scepticism over whether the deterrence argument was well-founded.

The US-USSR proposal was not well received and created suspicion that powerful states were unwilling to renounce chemical warfare.[74] Unfortunately it carried the impression that if the main possessors were reluctant to give them up, then CW might be useful, hinting at the potential value of CW and casting shadows on the need to renounce them.[75] The overall result was an unwillingness to commit to CW disarmament, a reduced adherence to the CW ban, and doubts about the contribution of bilateral efforts to a global ban.[76]

The alleged deterrent capability of CW clearly had a negative consequence for the consensus on CW disarmament (and on efforts for negotiating a ban on CW). While some military usefulness of CW can be acknowledged, arguments for keeping CW undermined the consensus for CW disarmament and slowed the already difficult negotiations on a CW ban. From a military perspective, any interest in chemical warfare was also contrary to efforts seeking to eliminate them altogether. For example the renewed interest in CW with the development of binary CW undermined the negotiations on a CW ban.[77] Such an interest also resulted in concerns about increasing CW proliferation during the 1970s and 1980s.[78] Among the arguments supporting the elimination of CW, risks related to CW possession will show that chemical warfare programs were perceived as 'a powerful stimuli of proliferation'.[79] Furthermore, CW were usually dubbed as the 'poor man's atomic bomb' in light of

[71] Flowerree, n 59, 9, 10, 12-3.
[72] Goldblat, n 4, 100.
[73] Ibid, 99; Myrdal, n 46, 269, 280 and SIPRI, *SIPRI Yearbook 1979: World Armaments and Disarmament.*
[74] Myrdal, n 46, 269.
[75] Goldblat, n 4, 100.
[76] Ibid.
[77] Joseph Goldblat, 'Arms Control Agreements and Humanitarian Laws of War' in Marek Thee (ed) *SIPRI Findings: Arms and Disarmament'* (1986), 297, 306 and Myrdal, n 46, 286.
[78] Julian Perry Robinson, 'Chemical and Biological Warfare' in *SIPRI Findings*, n 2, 179 and Flowerree, n 59, 9, 10.
[79] Julian Perry Robinson, 'Chemical and Biological Warfare' in *SIPRI Findings*, n 2, 179.

the fact that they are much easier and cheaper to acquire than nuclear weapons.[80] CW were therefore attractive to states which cannot afford nuclear weapons.

Although the arguments supporting CW possession were eventually withdrawn,[81] in the author's view as long as there were argument supporting the possession of CW and that they were thought to have any use as a deterrent, CW disarmament could not be seriously envisaged.

B. The Arguments Supporting the Disarmament of Chemical Weapons

While some states supported chemical warfare, the majority of states disputed both the use and the existence of CW and argued the need to eliminate them. Their arguments were largely founded on the poor or lack of military usefulness of CW, as well as on political considerations and on the risks inherent in the existence of CW. These arguments justify the need to enforce the ban on the use of CW and the need to conclude a stronger ban on CW.

1. The Controversial Reality of Chemical Deterrence

Firstly, as often as CW deterrence was argued, it was objected that CW did not have the deterrent value attributed to them by assimilation with nuclear weapons. The existence of chemical deterrence and retaliation was debated and contradicted by supporters of CW disarmament.[82] Chemical deterrence was disputed by CW and arms control experts on the basis that the destructive potential of CW could not be assimilated with that of nuclear weapons.[83] Therefore the MAD doctrine did not appear to apply to CW. As a consequence possession of CW and the threat of retaliation with CW were thought to be ineffective to dispel an attack.[84] Efficient CW deterrence was therefore unlikely, and not generally accepted.[85]

More generally the existence of CW deterrence was contradicted by the idea that arms control concepts applying to nuclear weapons did not extend and apply to CW. Lundin pointed out that most of these concepts were simply yet mistakenly transposed to CW.[86] Even authors who acknowledged a deterrent capability to CW rejected the comparison and assimilation between CW and nuclear weapons. For

[80] Flowerree, n 59, 9, 11.
[81] Hyltenius, n 13, 8.
[82] Lundin, n 57, 139, 142, 146.
[83] O'Neill and Schwartz, n 56, 251-2.
[84] Ibid, 145-6.
[85] Goldblat, n 4, 102.
[86] Lundin, n 57, 139.

example, Hedley Bull highlighted the fact that CW 'are no substitute for a strategic nuclear force'.[87] Similarly, Goldblat considered that 'CW are not comparable to nuclear weapons in terms of destructiveness or usefulness as deterrent against aggression'.[88] He also concluded that 'most nations have now set aside the idea that chemical weapons are a poor country's "nuclear deterrent."'[89] This further suggests that CW deterrence founded on the nuclear model was not accurate.

Secondly the argument supporting chemical deterrence based on the WWII experience was played down. The absence of CW use in WWII was attributed to the success of chemical deterrence but also to 'the lack of preparations for military operations' and to the existence of the Geneva Protocol.[90] This suggests that chemical deterrence can only be accepted to a certain extent. It has also been suggested that the lack of use of CW in WWII was an early indication of their questionable military uselessness.[91]

Although the deterrent value of CW now has an historical interest only, it was vital in the consensus to eliminate CW. As Robinson points out, 'the value of CW as deterrent of [CW] is the only public justification for possessing such weapons.'[92] This implies that once the deterrence argument was weakened there was no longer a justification-at least in terms of public opinion-for acquiring or possessing CW.

In light of these facts, it is submitted that the deterrence argument had some strength but was clearly insufficient to justify possession of CW, thus raising doubts about the legitimacy of CW acquisition and possession founded on deterrence.

2. The Possession of Chemical Weapons is Threatening and Bears Inherent Risks

Another key argument supporting the elimination of CW related to the inherent risks associated with the existence of CW. In addition to the lack of alleged strategic advantages to CW possession, there were risks of political and military nature associated with the possession of CW.

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[87] O'Neill and Schwartz, n 56, 251-2.
[88] Goldblat, n 4, 102.
[89] Ibid, 110.
[90] Center for Nonproliferation Studies, 'Deterrence' (2005) at <http://www.nti.org/f_wmd411/f1b6.html> at 23 March 2006.
[91] Roberto Garcia Moritan, 'A Latin American View of the Convention on the Prohibition of Chemical Weapons' (1993) 16, *Disarmament*, 100-101.
[92] Julian Perry Robinson, 'Chemical and Biological Warfare' in *SIPRI Findings*, n 2, 179.

Lundin considered that the possession of CW raised suspicions regarding the intentions of its possessor, and that uncertainty about which countries possess CW was 'the most destabilizing factor'.[93] The existence of CW in arsenals was a cause for insecurity and therefore more threatening than no CW capability.[94] Furthermore CW possession was believed to increase the likeliness of a CW conflict.[95] This insecurity was thought to extend to non-possessors and that 'all nations…must fear that the very possession of a [CW] capacity may draw the threat of such warfare upon them'.[96]

From a military perspective CW possession was deemed dangerous as it was generally believed to create an incentive for possession in other states, therefore spurring CW proliferation. Proliferation has been attributed to the wish to emulate CW possessors. For example, this was the case with the discovery of binary CW.[97] Proliferation was also often explained by the perceived need to possess CW to deter attacks from another CW possessor, and ensure one's security.[98] Based on the then recent and successful use of CW by Iraq, Mack pointed out 'one obvious strategic lesson', that if one state had CW, 'the incentive for its opponent to seek countervailing capability-if only for deterrence, will be extremely high.'[99] In such circumstances, CW acquisition created an incentive for other states to possess CW as well. Such proliferation concerns were especially strong in the 1970s and 1980s.[100] The use of CW by Iraq brought about increased international awareness of the problem of CW proliferation,[101] and concern over the increasing number of CW possessors.[102]

Another argument supporting CW elimination was the belief that available CW were an enticement to resort to their use, should a state be in such need. During the CWC negotiations the representative of Nigeria at the CD stated that 'the sheer

[93] Lundin, n 57, 139, 142, 144.
[94] Ibid, 145.
[95] Richard L Russell, 'Iraq's Chemical Weapons Legacy: What Others Might Learn from Saddam' (2005) 59 (2), *The Middle East Journal*, 187-209.
[96] Myrdal, n 46, 269.
[97] Julian Perry Robinson, Chemical and Biological Warfare' in *SIPRI Findings*, n 2, 185.
[98] Andrew Mack, 'Missile Proliferation in the Asia/Pacific Region' in Trevor Findlay (ed), *Chemical Weapons and Missile Proliferation, with Implication for the Asia/Pacific Region* (1991), 37, 49.
[99] Ibid.
[100] Aaron Kara, 'The Impact of Ballistic Missile Proliferation in the Asia/Pacific Region' in Trevor Findlay (ed), *Chemical Weapons and Missile Proliferation, with Implication for the Asia/Pacific Region* (1991), 53, 56.
[101] Julian Perry Robinson, Chemical and Biological Warfare' in *SIPRI Findings*, n 2, 184.
[102] Ibid, 185 and Flowerree, n 59, 10.

existence of chemical weapons provides an irresistible incentive for their use.'[103] Goldblat highlighted 'the danger that, under certain circumstances, the weapons prohibited maybe be resorted to, as has already occurred, will not disappear as long as these weapons remain in the arsenals of states.'[104] Similarly, it was feared CW could be used as a 'last resort' weapon. Such concerns clearly stressed the majority opinion that as long as CW existed there was a risk that they would be used.

This concern was expressed in the Final Declaration of the 1989 Paris Conference on the Prohibition of Chemical Weapons, which states the grave concern of states over the 'growing danger posed to international peace and security by the risk of the use of chemical weapons as long as such weapons remain and are spread.'[105] This declaration clearly highlighted the fact that CW were a threat as long as they existed. This concern was crucial for the consensus on CW disarmament as it directly pointed to need to eliminate CW in order to enforce the ban on their use, and suggested that disarmament was the only viable solution for a successful ban on the use of CW.

The general belief that there were inherent risks derived from the sole existence of CW supported this theory. Although the dangers related to CW arsenals will be looked into with the difficulties related to CW destruction, it can be remarked that CW arsenals themselves were thought to be threatening. Old CW stockpiles were thought to be an environmental hazard.[106] This extended to all CW arsenals and CW production facilities; even in peacetime they were acknowledged to be threatening to the environment.[107] It is submitted that although this sole concern cannot justify the elimination of CW, it has influenced CW disarmament. The key conclusion related to CW possession was that it did not improve security; on the contrary it created more risks than dispelled them.

3. The Questionable Military Usefulness of Chemical Weapons

A key argument supporting the elimination of CW was that they had only little, if no military interest, which greatly favoured the consensus on CW disarmament. The prevailing opinion on the matter was that CW had only limited usefulness in

[103] Azikiwe, n 25, 125.
[104] Goldblat, n 4, 200.
[105] *Final declaration of the Paris Conference on the Prohibition of Chemical Weapons*, adopted in Paris on 11 January 1989, Conference on Disarmament Doc CD/880 and Hyltenius, n 13, 4.
[106] *SIPRI Yearbook 1979,* 477.
[107] Mack, n 98, 48.

conflicts.[108] The use of CW in conflict was generally considered a poor choice and was disapproved of by the military. Therefore, based on military considerations, the possession of CW was not justified.

Firstly the use of CW required the fulfilment of numerous conditions, 'environmental conditions'[109] (wind, temperature, humidity and chemical agents properties), and strategic conditions.[110] The use of CW also required the protection of one's own troops against the risk of CW being blown back.[111] These 'complicated operational capabilities' were a significant disadvantage, de facto restricting the occasions for using CW and hindering their efficiency.[112] CW were usually only considered useful when they surprised an unprotected and unprepared enemy.[113] Finally in spite of these conditions CW retained an element of unpredictability and imprecision. Because of these practical difficulties, CW were not generally considered 'strategically decisive'[114] and provided only limited military advantages. Furthermore there were political costs to the use of CW which potentially exceeded the 'immediate strategic benefits' of their use,[115] as well as the risk of eventual international sanctions.[116]

Secondly there was clearly a strong reluctance on the part of the military to use CW. From a moral perspective, military commanders generally disapproved of CW which they traditionally perceived as 'dirty' and 'immoral' weapons.[117] The ban on the use of CW found its origin in the fact that CW were deemed cruel and caused unnecessary suffering.[118] Various authors expressed this distaste and disapproval of the military towards chemical means of warfare.[119] In the author's view such as disapproval of chemical warfare from the military itself had a key role in making CW

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[108] Moritan, n 91, 101.
[109] Peter Dunn, 'Chemical Weapons: and Introduction' in Trevor Findlay (ed), *Chemical Weapons and Missile Proliferation, with Implication for the Asia/Pacific Region* (1991), 3, 6-7.
[110] Mack, n 98, 48.
[111] Ibid.
[112] Tulliu and Schmalberger, n 8, 57-8.
[113] SIPRI, *The Problem of Chemical and Biological Warfare: CB Weapons Today,* (1973) vol 2; Hyltenius, n 13, 2 and Lundin, n 57, 144.
[114] Moritan, n 91, 101.
[115] Mack, n 98, 48.
[116] Tulliu and Schmalberger, n 8, 57.
[117] SIPRI, *The Problem of Chemical and Biological Warfare: CB Disarmament Negotiations, 1920-1970,* (1971) vol 4.
[118] Goldblat, n 4, 188-190; SIPRI, *The Problem of Chemical and Biological Warfare: CBW and the Law of War* (1973) vol 5.
[119] Flowerree, n 59, 10.

disarmament possible. Military reluctance towards chemical warfare both prevented further CW developments and supported the elimination of CW.

A corollary to the military uselessness of CW was the existence of efficient defences against CW, or 'protection against CW'. Experts considered that such a defensive capability removed the intended benefits from a CW attack.[120] Protection against CW was even thought to benefit security as it acted as a deterrent against chemical warfare.[121] Protection against CW made the threat of retaliation with CW inefficient. If effective protection cancelled the gains from the use of CW, the alleged benefits of CW deterrence and retaliation were also subsequently cancelled. Therefore on the one hand a protection capability increased security from chemical warfare;[122] it was even considered the 'best protection' against the use of CW.[123] However, on the other hand a protection capability against chemical warfare was not usually considered threatening as it did not have the 'destabilizing' effect that Lundin attributed to defensive CW capabilities (which are similar and indistinguishable from an offensive CW capability).[124] As a result protection against CW diminished the incentives for the use of CW.[125]

Even though the matter of protection against CW was not directly related to disarmament, protection against CW was yet another argument contributing to the consensus on CW disarmament. Today in spite of the disarmament obligation in the CWC, the Convention allows the development of protective capabilities against CW use.[126] The Convention also imposes an obligation of assistance between states parties in the case of a threat or use of CW.[127] Should a state decide to launch a CW attack, these measures are meant to deter it, again by cancelling the gains which could have been obtained from the use of CW.

With respect to the military interests of CW, the USSR ambassador to the CD, Serguei Bastanov, suggested that CW were abandoned and disarmed only because they are militarily irrelevant.[128] Such a statement shed doubts on the success of the

[120] Ibid and Mack, n 98, 48.
[121] Lundin, n 57, 146.
[122] Ibid, 141.
[123] Myrdal, n 46, 269.
[124] Lundin, n 57, 141.
[125] Ibid.
[126] Chemical Weapons Convention art X, Assistance and Protection Against Chemical Weapons.
[127] Ibid.
[128] Serguei B Bastanov, 'Some Observations on the Chemical Weapons Convention' (1993) 16, *Disarmament*, 31.

consensus to eliminate CW. It suggests that it was only because CW were militarily irrelevant that they could be disarmed. In turn, Moritan responded:

> [I]t might legitimately be asked, then, what importance the Convention on the prohibition of chemical weapons has if the value of the chemical weapons we are prohibiting are of little military value.[129]

However he also refined the judgment on this matter and concluded that in light of the inherent threatening nature of CW, 'the doubtful effectiveness of chemical weapons from a strictly military point of view is insufficient to guarantee their non-use'.[130] He also highlighted the central link between the need to conclude a multilateral arms control instrument and the enforcement of the ban on the use of CW, if only to ensure security from these weapons.[131]

In the author's view no firm conclusion can be drawn from this idea. However, it raises questions about international law and disarmament. The idea introduced by Bastanov suggests that it was not so much an 'affirmative' support for the elimination of CW which resulted in a consensus as arguments undermining the possession of CW. More specifically, if the possession of CW was founded on their potential military interest, the great scepticism about such a military usefulness simply removed the justification for possessing CW. Other authors share this view and conclude that CW disarmament was only a partial success for international security, because of the minor military usefulness of CW and therefore the limited scope of the CWC.[132] Furthermore, it is suggested that the elimination of CW can be perceived as the failure of international law to enforce the ban on the use of CW, since disarmament is the acknowledgement that the prohibition of the use of CW is insufficient to prevent their use. However, these analyses overlook political and contextual considerations justifying disarmament, not to mention the humanitarian foundations of the ban on CW.

Although this question today remains theoretical, it suggests that the disarmament of CW is only a partial success in terms of arms control, partly because

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[129] Moritan, n 91, 101.
[130] Ibid, 102.
[131] Ibid.
[132] Ralf Trapp, 'Geneva Negotiations on Chemical Weapons' in Marek Thee (ed) *SIPRI Findings: Arms and Disarmament'*(1986), 345, 349-350.

of the minor military relevance of CW, partly because of the lack of enforcement of the ban on the use of CW. However, in the author's view such an analysis could be determining, as disarmament could be extended to other weapons the use of which is prohibited under international law. Disarmament could be envisaged regardless of whether it applies to militarily insignificant weapons, of whether it is necessary to enforce a ban on their use, or simply as the logical step following the prohibition to use a given category of weapons. In that respect the author submits that independently from the consensus that justifies the disarmament of CW, the resulting disarmament model has further applications.

4. The Possession of Chemical Weapons is Contradictory to the Ban on the Use of Chemical Weapons.

The arguments for the disarmament of CW are corroborated with the idea that there is an inherent and obvious contradiction between CW possession and the prohibition of their use.[133] Until the conclusion of the CWC, the right to retain CW for 'second use' (allowed under the reservations to the Geneva Protocol) justified the possession of CW. However, in light of the customary value of the prohibition to use CW, such a right to CW use, and subsequently CW possession, was deemed 'incompatible with a ban on the very possession of those weapons.'[134] Some states have pointed out this contradiction, insisting that 'as long as the weapons covered by the Geneva Protocol were retained in the arsenals of states, an unconditional non-use obligation could not be credible'.[135] This statement was the first suggestion of the link between the enforcement of the ban on CW and the need to eliminate them altogether.

C. The Factors and Circumstances Supporting the Disarmament of Chemical Weapons

External factors contributed to the consensus on CW disarmament and to the conclusion of a new ban on CW. Events involving chemical warfare and the resulting public reaction on CW matters played a great role in renewing interest in CW and in spurring the international community to action towards a ban on CW.

[133] *SIPRI Yearbook 1969/70*, 189.
[134] Ibid.
[135] Goldblat, n 4, 92.

The use of CW-whether alleged or proved-resulted in strong reactions against CW.[136] The key event sparking awareness and interest in chemical warfare at the international level was the use of herbicides by U.S forces in Viet-Nam.[137] It was followed by an intense public debate on the US' chemical warfare policy.[138] More alleged uses of CW in Afghanistan, Cambodia, Laos, Manchuria and Korea, even though they were never confirmed, also contributed to the renewal of interest in the issue of CW.[139] A U.S domestic incident involving CW also spurred a strong public reaction, namely the accidental release of nerve gas which killed 6000 sheep in March 1968.[140]

The international and domestic reaction to the use of CW is usually one of very strong distaste and disapproval. For example Myrdal refers to national and international 'dismay' towards CW stocks; Flowerree mentions 'public revulsion' towards CW.[141] There were numerous examples where a strong public reaction influenced chemical warfare policies. The use of CW in WWI resulted in a 'public outcry' in numerous countries over the violations of the 1899 Hague Convention.[142] At the domestic level, public opposition to CW in the US resulted in cuts on spending for chemical warfare.[143] The public reaction and debate over the use of defoliants in Vietnam was described as the 'stimulus' to ban CW.[144] Later on the public's support of a ban on CW eventually coerced the US Senate into ratifying the Geneva Protocol. More importantly it was believed that the 1969 US unilateral moratorium on CW production was essentially based on an 'emotional reaction' to the sensitive topic of CW.[145] Even after the disarmament of CW was under way, public opinion had a significant role in CW disarmament operations.[146]

The public's opinion and hostile stance towards chemical warfare had an important role in the ban on CW. Earlier public condemnations of the use of CW

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[136] United Nations, *The United Nations and Disarmament: 1945-1970*, (1970), 355.
[137] Blacker and Duffy (eds), n 16, 141, 144; Hyltenius, n 13, 14.
[138] Thomas Hahn, 'Restocking America's Chemical Weapons Arsenal' (1981-1982) 13, *University of Toledo Law Revue*, 1183.
[139] Blacker and Duffy (eds), n 16, 6.
[140] Ibid 141; Matthew S Meselson, 'Chemical and Biological Weapons' in Reading From a Scientific American (ed) *Arms Control* (1970), 303.
[141] Myrdal, n 46, 280 and Flowerree, n 59, 13.
[142] John Ellis van Courtland Moon, 'Chemical Weapons and Deterrence: The World War II Experience' (1984) 8 (4), *International Security*, 5.
[143] Ibid, 8.
[144] Hahn, n 138, 1183.
[145] Ibid, 1184.
[146] *SIPRI Yearbook 1979*, 475; see Chapter 3.

favoured their ban in war. The Geneva Protocol's preamble refers to the public opinion's role on the use of CW; it states that the use of CW in war 'has been justly condemned by the general opinion of the civilized world.' The public's abhorrence towards chemical warfare was determining for conclusion of the CWC; its condemnation of chemical warfare was yet another argument supporting a stronger ban on CW.[147] More importantly, in the author's view, public support of the ban gave the CWC negotiations credibility and legitimacy. Much credit can be given to the public for placing pressure on decision-makers; it clearly influenced, in a positive way, the disarmament of CW. Such events provided both at the national and international levels, the momentum and the political will that allowed a consensus to disarm CW to emerge.

D. The Need for a New Ban Providing for the Elimination of Chemical Weapons

The idea eventually emerged that CW should be eliminated to ensure they are never used, thus linking the prohibition on the use of CW with their elimination.[148] In the author's view such a link is the key conclusion from the arguments and factors supporting the elimination of CW. The main other conclusion was that a new instrument was needed to enforce the ban on the use of CW, and that such an instrument had to include the elimination of CW. It is submitted that disarmament was the only solution to enforce the ban on the use of CW and that such a ban had to be embodied in a new instrument in order to have any strength.

However, it remains unclear when the need for a new instrument to embody the CW ban was first expressed. A new CW ban was first hinted at along with the criticism of the Geneva Protocol's weaknesses and lack of enforcement. Myrdal suggests that efforts to prohibit CW possession and production were initiated in the 1960s by scientists, people and also the UN General Assembly.[149] 'Serious consideration' of CW, along with Biological Weapons (BW) has been pinpointed to the summer of 1969.[150] However it was generally acknowledged that the control of CW received little if any attention for many years following WWII. The focus of

[147] John Ellis van Courtland Moon, 'Chemical Weapons and Deterrence: The World War II Experience' (1984) 8 (4), *International Security*, 6.
[148] *SIPRI Yearbook 1969/70*, 189 and Goldblat, n 4, 92.
[149] Myrdal, n 46, 268.
[150] Blacker and Duffy (eds), n 16, 142.

international community was on nuclear weapons, and attempts to control CW were sporadic failures.[151]

In the author's view it is not relevant to trace the precise moment when a decision to conclude such a ban was reached. However, for practical purposes the efforts to conclude a ban on CW can be traced to the late 1960s, and the efforts specific to the conclusion of the CWC can be pinpointed to the period following the conclusion of the Biological Weapons Convention (BWC) in 1972.[152] The important outcome of efforts towards a new ban on CW was the consensus that disarmament had to be included in this ban,[153] as opposed to earlier efforts which distinguished between 'measures to prohibit the use and measures designed to abolish [chemical] weapons.'[154]

The consensus on CW disarmament and the need to conclude a stronger ban on CW were eventually expressed clearly and connected together. This conclusion was reiterated on many occasions; many authors have voiced the need for the ban on CW to impose the elimination of CW. For example, in an early study on CW destruction, Mikulak stated that the 'complete and effective CW prohibition requires the destruction of stockpiles and CWPF [CW Production Facilities]'.[155] In the same study, Ooms declared that 'in all CW prohibition discussion, there was a consensus that treaty should include provisions for destruction (or conversion) of stockpiled chemical agents and munitions.'[156] This conclusion was also expressed at the occasion of the 1989 Paris Conference on the Prohibition of Chemical Weapons. In the Final Declaration of the Conference, '150 states expressed the determination "to prevent any recourse to chemical weapons by completely eliminating them."'[157] Furthermore the participating states highlighted the need for a new CW ban, stressing 'the necessity of concluding, as an early date, a Convention on the prohibition of the

[151] Ibid, 141.
[152] *Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction*, opened for signature 10 April 1972 (entered into force 26 March 1975) ('Biological Weapons Convention'), commended in UNGA resolution 2826 (XXVI), 16 December 1971.
[153] Ibid.
[154] *SIPRI Yearbook 1969/70,* 186.
[155] R Mikulak, 'Destruction of US Chemical Weapons Production and Filling Facilities' in SIPRI (ed) *Chemical Weapons: Destruction and Conversion* (1980), 57.
[156] Ooms, n 44, 123.
[157] Goldblat, n 4, 101.

development, production, stockpiling and use of all chemical weapons, and on their destruction'.[158]

The consensus on CW disarmament and on the need to conclude a new CW ban resulted in international negotiations which eventually led to the conclusion of the CWC. The arguments supporting the elimination of CW are therefore the foundation of the current CW disarmament regime.

Section 3: The Implications of the Disarmament of Chemical Weapons.

In spite of arguments supporting the possession of CW, a consensus for a new ban providing for the elimination of CW slowly emerged. The disarmament of CW can be examined from various perspectives beyond its law-enforcement purpose. A broader approach to CW disarmament is presented in the first part of this section, with a view to identifying more general objectives and benefits achieved by the disarmament of CW. The second part of this section examined the scope and intended results of the disarmament of CW from a law-enforcement perspective. The scope of CW disarmament details what is expected of disarmament, what effective disarmament entails. The implications of CW disarmament are the requirements that disarmament must meet to fulfil its purposes.

A. The Benefits of Chemical Weapons Disarmament

The disarmament of CW is the response to the need to enforce the prohibition on the use of CW and the need of a stronger norm to enforce this prohibition. This 'law-enforcement' role is the primary objective intended of disarmament. However, disarmament serves other purposes and brings about other benefits.

From a global perspective CW disarmament is not a goal pursued on its own but seeks to improve international security, which it does indirectly by removing the possibility to use CW. This is suggested in the Final Declaration of the 1989 Paris Conference on the Prohibition of Chemical Weapons. Participating states highlight the 'growing danger posed to international peace and security by the risk of the use of chemical weapons'.[159] Supporters of CW disarmament all highlight this international

[158] *Final declaration of the Paris Conference on the Prohibition of Chemical Weapons*, adopted in Paris on 11 January 1989, Conference on Disarmament Doc CD/880, art 4.
[159] Ibid, para 1.

security benefit to support CW disarmament efforts.[160] Overall the CWC can be perceived, as Bastanov describes, as 'an outstanding achievement for international peace and security',[161] being the first and only treaty removing an entire category of WMDs. The disarmament of CW clearly serves a global security purpose regardless of the military aspects of CW.

From a non-arms control perspective, CW are not methods of warfare but toxic hazards. They are both threatening as a stockpile of dangerous weapons and as a toxic hazard to people and to the environment.[162] Disarmament eliminates these risks related to the existence of CW. This aspect of disarmament is often overlooked in studies of the CW disarmament regime, but it is relevant from an environmental law perspective. It also matters to the people affected by CW storage and destruction sites, especially in light of the difficulties of finding safe destruction and transport methods.

The disarmament of CW can also be seen from an international humanitarian law perspective. The ban on CW was originally founded on such considerations.[163] In that regard the elimination of CW contributes to international humanitarian law by removing cruel and inhumane weapons. Dahinden highlights this 'overlap' between the law of arms control and disarmament and international humanitarian law.[164] Furthermore Goldblat mentions the 'intrinsic link between the development of international humanitarian law and progress in the field of disarmament', regarding the risk to resort to weapons prohibited by laws of war unless they are not destroyed.[165] Therefore, to a certain extent, disarmament serves the purpose of enforcing international humanitarian laws.

From an international law perspective the disarmament of CW serves yet another purpose. The CWC is the first disarmament instrument targeting an entire category of WMD, which is also a success for international law.[166] The CWC is a novelty in many respects; with new and unique law-enforcement and intrusive

[160] Cecil Hunt, 'The Potential Contribution of the Chemical Weapons Convention to Combating Terrorism' (1998-1999) 20, *Michigan Journal of International Law*, 523-536.
[161] Bastanov, n 128, 32.
[162] Chapter 3 on the inherent dangers of CW stockpiles.
[163] Goldblat, n 4, 188-190; SIPRI, *The Problem of Chemical and Biological Warfare: CBW and the Law of War* (1973) vol 5.
[164] 'Erwin Dahinden, 'The Future of Arms Control Law: Towards a New Regulatory Approach and New Regulatory Measures' (2005) 10 (2), *Journal of Conflict & Security Law*, 263, 265.
[165] Goldblat, n 4, 200.
[166] Hyltenius, n 13, 12.

verification mechanisms. In that respect it distinguishes itself from other arms control instruments, mainly by eliminating all CW.[167]

B. The Scope and Intended Results of the Disarmament of Chemical Weapons

The scope and intended results of disarmament must be determined; unfortunately disarmament is not often defined with precision and its scope is usually overlooked. Bastanov states that 'the CWC is designed to ensure the elimination and the non-resurrection of CW.'[168] How the CWC fulfils these requirements is looked into in greater detail with the study of the CW disarmament regime in the following chapter. However, what is implied in this statement is examined in this section.

The scope of CW disarmament determines what is intended and required of the obligation to disarm CW and therefore what can be expected of the CW disarmament regime. In practical terms it corresponds to the extent of the intended destruction obligation. The scope of the disarmament of CW is therefore a crucial issue; it points out the size and complexity of the intended task.

The CW disarmament regime must be wide enough to cover all aspects of chemical warfare and fulfil the security purposes of CW disarmament. As early as 1959 a CW disarmament proposal submitted by the USSR to the UN General Assembly included the destruction of CW but also the prohibition of military research and development, and the provision of controls over the disarmament regime.[169] Soon thereafter, developing countries proposed that disarmament include the 'total prohibition of manufacture, maintenance of [CW] and the elimination of all equipment and facilities.'[170]

A 1980 SIPRI study on CW destruction and conversion introduced two key questions: first, 'what is to be eliminated and precluded?' and second, what 'activities associated with CW that are to be proscribed.'[171] The first question referred to the definition and delimitation of CW. In regard to the second question it has been

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[167] Rodrigo Yepes-Enriquez, 'Enforcement of the prohibition of chemical weapons in its wider perspective' in Lisa Woollomes Tabassi and Rodrigo Yepes-Enriquez (eds), *Treaty Enforcement and International Cooperation in Criminal Matters: with Special Reference to the Chemical Weapons Convention* (2002), 5.
[168] Bastanov, n 128, 32.
[169] SIPRI, *The Problem of Chemical and Biological Warfare: CB Disarmament Negotiations*, 1920-1970, (1971) vol 4, 226.
[170] Ibid.
[171] SIPRI (ed) *Chemical Weapons: Destruction and Conversion* (1980), 4.

suggested that 'to abolish the threat, the convention needs to cover activities of preparation for offensive chemical warfare; simply destroying CW stockpiles is not enough.'[172] Similarly Myrdal suggested banning all production of CW tools, including munitions and CWPF, following the destruction of stockpiles. Furthermore the prohibition of the production of CW agents must include 'all related activities.'[173] Finally, she suggested the prohibition of CW testing and research.[174]

As Myrdal pointed out, the disarmament obligation must cover 'all means of chemical warfare.'[175] CW disarmament must include existing CW but also all the means to produce them. The scope of CW disarmament may extend even further. The 1961 US-USSR Joint Statement of Agreed Principles for Disarmament Negotiations ('Mc Cloy Zorin Statement') calls for the destruction of delivery systems for WMD.[176]

The US Arms Control and Disarmament Agency takes a slightly more general approach to CW disarmament. It states that 'the elimination of chemical weapons involves two principal activities, the destruction of existing weapons and the prevention of the proliferation of new ones.'[177] This approach suggests that destruction must include non-proliferation efforts in order to be effective. Although the non-proliferation element is often overlooked, it must not, in the author's view, be ignored.

Disarmament and non-proliferation are complementary and the completion of one without the other is useless. On the one hand disarmament without non-proliferation measures could allow the production of new weapons and the renewal or replacement of stockpiles with other-if not better-chemical means of warfare. On the other hand, as the definition of proliferation suggests, it only has a spill-over effect. Non-proliferation measures only would merely stop CW armament from increasing-stopping CW production and acquisition- but not reversing it. The threat from CW

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[172] *SIPRI Yearbook 1979,* 471.
[173] Myrdal, n 46, 291.
[174] Ibid, 292.
[175] Ibid, 278.
[176] *Joint Statement by the USA and USSR of Agreed Principles for Disarmament Negotiations*, 10 September 1961, art 3 (c), ('Mc Cloy-Zorin Statement').
[177] Arms Control and Disarmament Agency, *Annual Report* (1997).ACDA report 1997, 1, at <http://dosfan.lib.uic.edu/acda/reports/annual/chpt1/htm> at 24 September 2995.

stockpiles would then remain unaddressed, and another kind of proliferation is still possible via diversion or theft of existing weapons from stockpiles.[178]

The author agrees with the fact that the scope of CW disarmament must be very wide and cover numerous activities; states must not retain CW or the means to produce them for the CW ban to have credibility. Therefore the disarmament obligation must extend beyond the destruction of CW and CWPF and include perhaps unforeseen CW-related activities. Such a wide scope could be interpreted as preventive non-proliferation measures, seeking to keep states from being able to produce CW.

The disarmament of CW must also meet certain requirements to fulfil its goals; they determine what is implied in the disarmament of CW. Firstly the cessation of CW production is the necessary corollary of the commitment to disarm CW.[179] A commitment from states to end or renounce the production of CW was one the first goals sought in the CWC negotiations. Arms control diplomat Alva Myrdal was particularly adamant on this first step, stating that 'the aim of CW negotiations must be to agree immediately on the commitment to prohibit totally the production of chemical warfare means,'[180] and that such a binding decision 'should be taken with all possible haste.'[181] CW production is in direct opposition with the goal of disarmament. The end of weapons production was on of the Mc Cloy-Zorin Statement principle and an obligation in the US-USSR 1990 Bilateral Destruction Agreement.[182]

For most states the cessation of CW production was undertaken fairly easily; most CW possessors spontaneously and unilaterally renounced CW production regardless of the negotiations on a CW ban. The Soviet Union did so in 1987.[183] Unfortunately at the same time the US ended an 18-years unilateral moratorium on CW production and decided to renew its CW stockpiles with binary CW.[184] Throughout the CWC negotiations all states were encouraged to abandon CW production. This objective was also pursued in the context of the US-USSR bilateral

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[178] Goldblat, n 4, 3 and Mikhail Pogorely, 'Prospects For Russia-US Cooperation in preventing WMD Proliferation' (2004) 17 (1), *Journal of Slavic Military Studies*, 79, 92.
[179] Myrdal, n 46, 278.
[180] Ibid, 290.
[181] Ibid.
[182] *US-USSR Bilateral Agreement on Destruction and Non-Production of Chemical Weapons and on Measures to Facilitate a Multilateral Convention on Banning Chemical Weapons*, signed 12 June 1990, Conference on Disarmament Document CD/1001, ('Bilateral Destruction Agreement')
[183] Goldblat, n 4, 97.
[184] Goldblat, 'Arms Control Agreements' in *SIPRI Findings*, n 76, 297, 306.

negotiations on a ban on CW.[185] The obligation not to produce CW is now contained in the first article of the CWC.[186]

In the author's view the end of production is self-evidently necessary for the prohibition of CW. However, the experience of CW disarmament suggests that it was not the case, if only in light of replacement or renewal arsenals with new CW. This was especially a concern with the development of binary CW to replace old and obsolete CW,[187] and with the renewed interest of some states in developing their own chemical warfare capabilities.[188]

The matter of CW production highlights the second requirement of CW disarmament; CW destruction must be irreversible and CW are not meant to be replaced. As Lohs points out, the goal of destruction is to make agents 'unusable for military purposes'.[189] To fulfil this, the destruction process must be definitive and irreversible to ensure that former CW capabilities and destruction by-products cannot be reversed and put to prohibited uses.[190] The destruction of CWPF must ensure 'that CW agent production or filling couldn't be resumed' and that 'its components cannot be reassembled'; meaning that no more CW production can take place after disarmament.[191]

Irreversible disarmament also implies that the destruction process must not convert one kind of CW into another. This must be pointed out since CW possessors have sometimes replaced old weapons with new weapons, which is contrary to the goal of disarmament.[192] The CWC now imposes the destruction of CWPF and CW, and that destruction must result in by-products that are not toxic nor can be used as a CW.[193] In the author's view these requirements meet the need for irreversible disarmament, although there are interpretation issues over some of these obligations.[194]

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[185] SIPRI, *SIPRI Yearbook 1991: World Armaments and Disarmament,* 516-7.
[186] Chemical Weapons Convention art 1 para 1.
[187] Myrdal, n 46, 286.
[188] Ibid, 287-9.
[189] K Lohs, 'Destruction or Conversion of Chemical Warfare Agents: Possibilities and Alternatives' in SIPRI (ed) *Chemical Weapons: Destruction and Conversion* (1980) 67, 68.
[190] Ibid.
[191] Mikulak, n 155, 63.
[192] Justin Bernier, 'The Death of Disarmament in Russia?' (2004)34 (2), *Parameters*, 84-104.
[193] Chemical Weapons Convention arts 4 and 5 and Verification Annex Part IV (A) para 12 and part V para 13.
[194] General Accounting Office Report, *'Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation'*, GAO-04-361, March 2004, 245; see also Chapter 4.

In light of the numerous benefits of CW disarmament, the scope and requirements of CW destruction serve other purposes, namely environmental and human safety purposes. In studies on CW destruction, environmental and human protections are also mentioned as mandatory requirements.[195] Among the goals of CW disarmament Lohs points out the need to 'reduce their [chemical agents] toxicity so that there are no hazard for man and for the environment'.[196] It is the author's belief that CW disarmament ought to be considered from this broad perspective and not only as the process of arms destruction.

These requirements were taken into account in the drawing up of the CWC negotiations.[197] However, the extent to which they were followed up in the CWC both leaves room for criticism and highlights the great difficulty to anticipate the practical aspects of disarmament.[198] On the one hand, as the SIPRI study on CW destruction and conversion underlines the difference between 'issues that are important and must be discussed for progress in the negotiation of the treaty' which are often very technical, and other, unrelated issues of concern.[199] In the author's understanding, the latter are often contextual political issues which must be debated, sometimes to the detriment of 'substantive technical issues' which are subsequently overlooked.[200] This neglect of the practical aspects of disarmament can be criticized, but not without nuances.

The requirements of CW disarmament clearly have a strong technical connotation. Even though they are usually based on previous experiences of CW disarmament, it would have been difficult to anticipate such technical details during negotiations at the CD. The downside of this is that these requirements were challenged with the disarmament of CW. Although it is the author's belief that technical aspects of disarmament could not be not part of the 'diplomatic' agenda during the CWC negotiations at the CD, unfortunately this suggests that the CD is not the appropriate body for negotiating all aspects of disarmament, in light of the scientific and technical implications of CW destruction. This raises a more general question about the ability of multilateral arms control negotiating forums and

[195] V. Vojvodic and Z. Binenfeld, 'Some Toxicological Problems in the Destruction of Chemical Warfare Agents' in SIPRI (ed) *Chemical Weapons: Destruction and Conversion* (1980), 95, 96, 104.
[196] Lohs, n 189, 68.
[197] *SIPRI Yearbook 1979,* 471.
[198] See Chapter 3: The Difficulties of Chemical Weapons Disarmament.
[199] SIPRI (ed) *Chemical Weapons: Destruction and Conversion* (1980), 7.
[200] Ibid.

procedures to meet the needs of effective disarmament. However, the CWC remains the first example in that respect and its negotiation the first attempt to achieve effective disarmament.

Some conclusions about the nature of CW disarmament can be drawn from these requirements. In the author's view they suggest that disarmament is intended to be effective and to show accountable results. The elaborate CWC verification system also suggests that effectiveness and accountability are key features of the CW disarmament regime. The intended results of CW disarmament can be summarized as the concrete destruction of CW, the subsequent security benefit and the successful implementation of the CWC disarmament regime. If CW disarmament is not effective, the convention has failed its purpose. Also, as long as disarmament is not completed, the ban is not fully enforced and the CW threat remains. In other words until disarmament is complete, it can be said that both the success of the CWC and of the ban on CW are pending.

Section 4: Finding the Appropriate Disarmament Instrument for Chemical Weapons

Concomitantly with the consensus to eliminate CW, international efforts were pursued for the conclusion of a ban to enforce the prohibition on the use of CW and for that purpose, seek their elimination. Firstly the appropriate forum for negotiating this ban and the adequate type of ban must be found. Secondly the matter of participation in the negotiations must be resolved.

A. The Choice of the Type of Instrument to Ban and Eliminate Chemical Weapons

The arguments supporting CW possession show that the decision to ban and disarm CW was not self-evident for some states. A similar difficulty occurred with the type of ban required; alternatives to a multilateral, traditional arms control agreement were also envisaged and a bilateral ban on CW between the two superpowers was also considered.

The choice of an appropriate instrument to ban and disarm CW turned out to be difficulty in negotiations. A first proposal to keep and modify the Geneva Protocol was quickly discarded,[201] although it was the approach favoured by the SU.[202] A

[201] Goldblat, n 4, 92.

review and modification of the Protocol was also envisaged, to include disarmament provisions and adapt it to newer chemical warfare technologies,[203] along with the removal of reservations to the Protocol. However, it was eventually agreed that the Protocol could not prevent the use of CW.[204] This also corresponded to the need for another instrument and eventually resulted in a consensus to replace the Protocol with a more stringent instrument.[205]

Other means to ban CW were envisaged, including the adoption of voluntary, unilateral measures. Mexico proposed that CW could be renounced and banned unilaterally with decisions to renounce CW by individual states.[206] This suggestion was also discarded, other countries stating that 'unilateral decisions were not a substitute for internationally binding agreements'.[207] Although there was merit to unilateral measures in the CWC negotiations,[208] it now seems obvious that they could not replace a multilateral, legally-binding instrument.[209] Once it was agreed a legally-binding, multilateral instrument to ban CW was needed, the matters of the choice of the negotiating forum and of participation in the negotiations were raised.

The CD was automatically chosen as the forum for the negotiation of a global ban on CW; it is the only multilateral negotiating body in the field of arms control and disarmament. It is responsible for the negotiations and conclusion of the CWC,[210] as well as other key arms control agreements.[211]

The CD works independently from the UN; it adopts its own rules of procedure and agenda.[212] Membership of the CD is limited and meant to be representative of all regions and all groups of states.[213] States or organizations which

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[202] *SIPRI Yearbook 1969/70,* 189.
[203] United Nations, *The United Nations and Disarmament:1945-1970*, (1970), 356 and SIPRI, *The Problem of Chemical and Biological Warfare: CB Disarmament Negotiations, 1920-1970,* (1971) vol 4, 247-252.
[204] Hyltenius, n 13, 4.
[205] Ibid.
[206] *SIPRI Yearbook 1969/70,* 188.
[207] Ibid.
[208] Lundin, n 57, 144.
[209] Ibid.
[210] Trapp, 'Geneva Negotiations on Chemical Weapons' in *SIPRI Findings*, n 132, 345-250; Goldblat, n 4, 100-102; United Nations, *The United Nations and Disarmament:1945-1970*, (1970), 349-372 and SIPRI, *Yearbook of World Armaments and Disarmament* 1991, 513-535.
[211] Tulliu and Schmalberger, n 8, 171-2.
[212] 'Conference on Disarmament', United Nations Overview, 1, <http://esa.un.org/esaWeb/esaCalendar> at 7 March 2006.
[213] Goldblat, n 4, 8, 10 and Conference on Disarmament, General Information (2002) <http://disarmament2.un.org/cd/cd-backgnd.html> at 8 July 2005.

can contribute to the negotiations or are particularly concerned by them are given observer status in the CD.

The CD works by consensus, a rule which both expresses and explains the reduced number of member states allowed to conduct negotiations.[214] The rule is justified by the politically sensitive nature of arms control for states.[215] The rule results in the procedure of vote by consent, as opposed to decisions opposing a majority to a minority.[216] Although the CD has expanded its membership since its creation in 1979, it is kept to a limited number in order to maintain the rule of consensus.

Before the matter of participation in the negotiations of the CWC at the CD are looked into, another negotiating forum for a ban on CW must be mentioned. Side by side with efforts at the CD bilateral negotiations towards a CW ban took place between the US and the SU, in parallel but independently from the multilateral negotiations at the CD.[217] These bilateral efforts sought similar results but their influence and impact on multilateral efforts were controversial.

Bilateral efforts to ban CW raise questions about the potential of bilateral arrangements, whether as a contribution, competition or alternative to traditional multilateral arms control treaties.[218] As the study of the different CW disarmament regimes will show, bilateral efforts were not intended as a replacement of the 'Geneva Process'; in spite of this they have raised the fear that no multilateral ban would take place.

B. Participation in the Disarmament Instrument

The choice of the CD as the negotiating forum for the CWC directly relates to the matter of participation in the negotiations, which is closely linked to the composition, internal workings and rules of procedure of the CD. Participation in the negotiations of the ban on CW has significant implications. However, participation in the ban is very different from participation in the drawing up of such a ban, which is examined first.

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[214] Goldblat, n 4, 9.
[215] Ibid.
[216] Ibid.
[217] Chapter 2 on bilateral agreements.
[218] Chapter 5.

The eradication of CW is a global security issue of concern for every state. At the occasion of the First Special session of the General Assembly (GA) on Disarmament,[219] it justly underlined the 'right of each state to participate in disarmament negotiations', along with 'the duty to contribute to efforts in the field of disarmament.'[220] However, whether participation in CW negotiations is a right or a duty of every state is not a central aspect of the study of CW disarmament; it is only secondary from a practical disarmament perspective. On the one hand since CW are a global issue it seems right, in the author's view, that any state can participate in the ban on CW. Furthermore the CWC is intended as a global instrument[221] and is intended to achieve universal adherence.[222] On the other hand, from a functional perspective since only a limited number of states are concerned with CW disarmament, only their participation is necessary. This suggestion can be corroborated with the idea that the participation of the main CW possessors is necessary for the ban to be successful and credible. However, it must be added that the CWC has a direct effect on the activities of the chemical industry, and this fact influences the matter of participation beyond disarmament questions only.

However, even though the ban on CW is the concern of all states, it does not necessarily mean every state must take part in the negotiations of such a ban. The composition and rules of procedures of the CD seem to support this conclusion, and as the forum for the conclusion of the CWC it automatically excluded wide participation in the negotiations. In the author's view the limited number of participants yields better results and speeds up the negotiating process. Although participation in the CWC negotiations is now a historical matter only, it hints at the question of restricted participation in disarmament instruments.

The composition of the CD could be interpreted as the need for a restricted, 'qualitative' participation in arms control matters. 'Qualitative' implies that only states with a special interest or particularly affected by CW should be actively involved in certain arms control matters.[223] This view is supported by the Final Document of the UNGA First Special Session on Disarmament which states that

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[219] *SIPRI Yearbook 1979*, 490-515.
[220] *Final Document of the First Special Session of the UNGA Devoted to Disarmament*, 10th sess, [27] UN Doc A/RES/S-10/2.
[221] Goldblat, n 4, 102.
[222] Errea, n 12, 24.
[223] Andrew Michie, 'The Provisional application of Arms Control Treaties' (2005) 10 (3), *Journal of Conflict and Security Law*, 345, 348-9.

militarily significant states have a primary responsibility for halting and reversing the arms race.[224] A similar view is found in the 1991 Cartagena declaration, in which Latin American states point out that militarily developed States have a particular responsibility concerning WMD.[225]

Concerning the disarmament of CW, this suggestion could be extended to participation in the ban; a strict interpretation of this suggestion would limit the involvement in CW disarmament to a limited number of states. Following that thought, participation in the CWC would not be a matter of numbers but of identity. Participation could be determined by the state's significance or 'quality' in disarmament matters, depending on its CW capability or its chemical industry. This suggestion is further supported by the number of CW possessors;[226] only a small number of states are directly concerned with the disarmament aspects of the CW ban.

A related argument supporting this theory is the idea that certain states, 'all CW-capable states' must participate in the CWC for it to have any strength.[227] Furthermore, documentation on the CWC also distinguishes member states according to their 'quality' as CW possessors or not. Such documentation usually indicates which of the 'relevant' states members of the CWC are and which are not.[228] From a disarmament perspective and for the realization of the disarmament goal only the participation of these states is relevant and necessary.

The matter of restricted participation has several implications. First it suggests that the CWC can be successful only if CW possessors are members, which in turn implies that although the CWC is considered a non-discriminatory treaty, de facto it distinguishes between its member states in terms of disarmament. Secondly, from a disarmament approach, the focus on CW possessors does not correspond to the negotiating process undertaken at the CD, which represents all groups of states and takes into account their various interests.[229]

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[224] Final Document of the First Special Session of the UNGA Devoted to Disarmament, 10th sess, [28] UN Doc A/RES/S-10/2.
[225] *Cartagena Declaration on the Renunciation of Weapons of Mass Destruction*, signed on 4 December 1991, UN doc. A/Res/46/760.(*'Cartagena Declaration'),* art 9.
[226] *Report of the OPCW on the Implementation of the Chemical Weapons Convention in 2004*, tenth session of the Conference of the States Parties, 7-11 November 2005, OPCW document C-10/4 (2005), 4.
[227] *SIPRI Yearbook 1991,* 514.
[228] Arms Control and Disarmament Agency, *Annual Report* (1997).
[229] Hyltenius, n 13, 9 and Wagner, n 228, 16.

In the author's opinion the downside of this suggestion is that disarmament matters could be the licence of a limited number of states and that participation in disarmament instruments would be exclusive to the point of discrimination. It could furthermore be argued that such a distinction contradicts the sovereign and equal rights of every state, especially in a matter of global concern such as CW disarmament. It implies that all states do not have the same status before disarmament matters, an assumption which could be very unpopular.

In the author's view it is difficult to draw firm conclusions on the participation and involvement of states in arms control instruments from the CW experience only. However, it can be underlined that not all states are equally concerned by the ban on CW. In the case of the CWC there is a difference between states interested in the ban from a security perspective and states concerned by the ban because of their civilian chemical activities. As the analysis of a disarmament ban proceeds, a clear distinction between a handful of states directly concerned by CW disarmament, and all other states, will appear.

It can be concluded from this analysis that first an agreement was reached on the type of instrument to ban CW. Secondly, the CD was chosen as the institution to lead the negotiations of this instrument. Participation in these negotiations followed the CD's composition and rules of procedures. Participation in the ban, however, followed the model of arms control instruments, seeking as broad an adherence as possible. However it is the author's belief that these traditional arms control institutions and mechanisms do not necessarily correspond to a disarmament approach, nor meet the specific needs of CW disarmament.

Section 5: The Negotiations of a Ban on Chemical Weapons

Multilateral negotiations for a CW ban are distinct from efforts on disarmament undertaken at the UN level, which also encompass CW. The UN contributed to the ban of CW, yet it is not a negotiating body but a forum for deliberation in this particular context.[230] This section introduces a very brief history of the early negotiations of a CW ban, which includes and underlines the role of the UN. It is followed by an overview of the CWC negotiations at the CD. The negotiations on the CW ban brought about the distinction and division between CW and Biological Weapons (BW).

[230] Goldblat, n 4, 9-10.

A. Efforts to Ban Chemical Weapons Undertaken Under the Aegis of the United Nations

Early disarmament efforts undertaken at the UN were not specific to CW. No real discussion on CW took place until they were isolated and considered independently as a separate item in the UN agenda.[231] It is agreed among authors that until then most of the attention and arms control efforts focused on nuclear weapons.[232] BCW were overshadowed and received little attention in terms of arms control;[233] they were mostly ignored during the 1950s and 1960s.[234]

The CW ban was closely intertwined with the general history of arms control and especially that of WMD, which began with the creation of the UN. CW were considered together with BW ('BCW'); not as a distinct category of weapons but as a component of WMD.[235] The disarmament of BCW was first sought as part of the goal of 'General and Complete Disarmament', initiated in 1959.[236] However, while the goal of General and Complete Disarmament eventually failed, partial measures of disarmament were sought and awareness of CW increased.[237]

Interest in CW at the UN level was mostly triggered by international factors mentioned above. The use of CW or means of chemical warfare, alleged or proved, led to reactions from states and the public.[238] The fact that BCW had been overlooked was first pointed out in the UNSG annual report for 1967-1968.[239] A number of UN documents underlined the gravity of the BCW threat and the urgency of giving BCW proper consideration in the arms control and disarmament agenda. Key documents include the 1969 Report requested by the UNGA, with an important foreword by the

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[231] *The United Nations and Disarmament: 1945-1970*, (1970), 365.
[232] Hyltenius, n 13, 5 and SIPRI, *The Problem of Chemical and Biological Warfare: CB Disarmament Negotiations*, 1920-1970, (1971) vol 4, 221.
[233] Ibid.
[234] The United Nations Department for Disarmament Affairs, *The United Nations and Disarmament'* (1985), 108.
[235] *Establishment of a Commission to Deal with the Problems Raised by the Discovery of Atomic Energy*, GA Res 1, 1st sess (1946); Principles Governing the General Regulation and Reduction of Armaments, GA Res 41, 1st sess (1946); see also SIPRI, *The Problem of Chemical and Biological Warfare: CB Disarmament Negotiations, 1920-1970*, (1971) vol 4, 195.
[236] *The Question of General and Complete Disarmament*, GA Res 1378, 14th sess (1959), and resolutions 1767, 17th sess., 1884, 18th sess, 1908, 19th sess., 2030, 20th sess., 2031, 20th sess., 2162, 21st sess., 2342, 22nd sess., 2454, 23rd sess., 2602, 24th sess. See also United Nations, *The United Nations and Disarmament:1945-1970*, (1970), 78-92, 353-357; United Nations Department for Disarmament Affairs, *The United Nations and Disarmament* (1985), 3, 19-29.
[237] Goldblat, n 4, 38.
[238] United Nations, *The United Nations and Disarmament: 1945-1970*, (1970), 355.
[239] *UNSG Annual Report*, Official Records of the GA, 23rd sess, A/7201/Add.1;
SIPRI, *The Problem of Chemical and Biological Warfare: CB Disarmament Negotiations, 1920-1970,* (1971) vol 4, 195; United Nations, *The United Nations and Disarmament:1945-1970*, (1970), 359.

UNSG.[240] Other, non-UN, documents provided knowledge on BCW, especially a World Health Organization report[241] (similar to that of the UN), and the Conference of the Committee on Disarmament (the CCD, a CD predecessor) report on BCW.[242] Later on other UN efforts spurred negotiations and contributed to the ban on CW. For example, the Final Document from the First Special Session of the General Assembly devoted to Disarmament in 1978 emphasized the disarmament of CW among the priorities to be pursued.[243]

The debate on BCW reached its peak in the late 1960-early 1970s; BCW were considered in a separate item on the UN agenda for the first time in 1969.[244] UN efforts in the field of BCW increased awareness, disseminated information and renewed interest in BCW issues, but they did not lead to a legally binding disarmament instrument.

B- The Role of the United Nations in the Chemical Weapons Disarmament Debate

The role of the UN in the BCW debate and in the CW ban is significant yet it must be put in perspective; its role in CW disarmament can be commented. The UN is usually considered to have the primary responsibility in arms control matters.[245] UN institutions provide a forum for deliberation, discussion, information and proposals for BCW arms control.[246] The UN promotes the goal of CW disarmament and contributes towards its achievement. It commends proposals and conventions on the control of BCW; it encourages and supports such arms control efforts, as the numerous UN documents and efforts supporting the disarmament of BCW testify.[247]

Other UN contributions include the UNSG mandate for investigating alleged uses of CW, and the subsequent reports submitted by the Group of Experts appointed

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[240] *SIPRI Yearbook 1969/70,* 185.
[241] World Health Organization Report, 'Health Aspect of Chemical and Biological Weapons' ; Vojvodic and Binenfeld, n 195, 118.
[242] United Nations, *The United Nations and Disarmament: 1945-1970*, (1970), 365.
[243] Final Document of the First Special Session of the UNGA Devoted to Disarmament, 10th sess, [75] UN Doc A/RES/S-10/2.
[244] Ibid; United Nations, *The United Nations and Disarmament* (1985), 108.
[245] Goldblat, n 4, 39.
[246] The United Nations Department for disarmament Affairs, '*The United Nations and Disarmament'* (198), 15-17.
[247] High-Level Meeting of the Security Council, *Note by the President of the Security Council on behalf of the Members*, 3046th meeting of the Security Council (1992), UN Doc S/23500.

by the Secretary-General for this task.[248] The UN has called for the early conclusion of and the broad adherence to the CWC on many occasions.[249] Following its entry into force, a relationship agreement has been drawn up for cooperation between the two organizations.[250]

Generally it can be said that the UN contribution to CW disarmament is a positive one. On the one hand UN forums are representative; they contribute to and promote the success of disarmament. On the other, it is the author's opinion that they can only have a limited role in disarmament. Programs of general disarmament undertaken in the UN are not result-based and result in political declarations. While resolutions reflect a deliberation on topics of concern and a general consensus, they remain indicative rather than commanding and are not binding. As the implications of CW disarmament show, effective disarmament calls for technical negotiations. The UN is quite remote from such discussions; it is not the appropriate institution to achieve effective disarmament, nor is it mandated to conclude arms control and disarmament instruments.

C. Negotiations at the Conference on Disarmament

The history of the CW ban at the CD closely followed that of the UN efforts on CW. The ban on CBW was first taken up separately by the Eighteen Nations Committee on Disarmament (ENDC, another CD predecessor) in 1962, without success.[251] Attempts at controlling BCW were 'sporadic' until 1969 when they began to be seriously considered by the CCD.[252] However, in retrospect it is usually considered that it was another decade before a ban on CW was seriously envisaged.[253]

CW were a specific item on the permanent agenda of the CD from 1979.[254] An Ad Hoc Working Group on Chemical Weapons was established in 1980 and re-established every year until the conclusion of the CWC. It first had a formal

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[248] UNGA resolution A/RES/35/144C (1980); United Nations, *The United Nations and Disarmament* (1985), 112. A permanent group of expert was subsequently established following the 1982 report; UNGA resolution A/RES/37/98 (1982).
[249] Above, n 235.
[250] *Relationship Agreement between the United Nations and the OPCW,* which was signed on 17 October 2000, following OPCW decision C-VI/DEC.5, 17 May 2001 and annexed agreement in UN resolution A/RES/55/283 (2001). See also OPCW 'Relationship Agreements', <http://www.opcw.org/html/db/legal/rel_agree.html> at 8 July 2005.
[251] Tulliu and Schmalberger, n 8, 59.
[252] Blacker and Duffy (eds), n 16, 141-2.
[253] Tulliu and Schmalberger, n 8, 59-60.
[254] The United Nations Department for disarmament Affairs, '*The United Nations and Disarmament'* (1985), 15.

negotiating mandate in 1984 and began the final drafting in 1990.[255] The negotiations were largely based on the US draft convention submitted in 1984; from then work proceeded on a 'rolling text'.[256]

A final text was agreed on in 1992 and transmitted to the UNSG. The CWC was opened for signature in 1993 and entered into force in 1997. The CWC is far and away one of the main achievements of the CD.[257] Before the difficulties and significant points of disagreement on CW disarmament are underlined, some conclusions can be drawn from the multilateral efforts to ban CW.

A few remarks must be made, in the author's view, to place the disarmament of CW in the general international arms control debate. In the author's view the importance of CW could be played down to a certain extent. Until international arms control talks focused on separate categories of weapons, CW were clearly a secondary preoccupation after nuclear weapons on the general arms control agenda.[258] This is supported by the poor military interest of CW and the earlier suggestion that these weapons are not seen to be as crucial to international security as supporters of their ban and elimination would believe. However, from an international legal perspective the CW ban is significant since it is the first disarmament treaty and a novelty in international law in many respects. Myrdal justly underlines a special link between CW and disarmament.[259] This suggests a difference between the security benefits of CW disarmament and the international legal benefits of the CW disarmament regime. These two different perspectives shed an entirely different light on the value of CW disarmament.

D. The Division Between Chemical and Biological Weapons

The negotiations on CW cannot be separated from efforts on biological weapons (BW). Historically, CW and BW were linked and considered together until the conclusion of the BWC in 1972.[260] Traditionally CW and BW were considered together by international law; efforts at control regrouped them under a single category.

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[255] Ibid, 110-114; Hyltenius, n 13, 7.
[256] Ibid, 113; OPCW, *Genesis and Historical Development* <http://www.opcw.org/en/CWC_History.html> as of 8 July 2005.
[257] Errea, n 12, 24.
[258] SIPRI, *The Problem of Chemical and Biological Warfare: CB Disarmament Negotiations*, 1920-1970, (1971) vol 4, 221.
[259] Myrdal, n 46, 268.
[260] Goldblat, 'Arms Control Agreements' in *SIPRI Findings*, n 76, 297, 306.

The scope of the Geneva Protocol covered bacteriological (or biological) means of warfare along with CW. BCW were a single agenda item at the UN and at the CD,[261] where multilateral efforts sought to ban both categories of weapons under a single instrument. This was explained, in short, by the similarities between the weapons and by their historical association in the public mind. However, the negotiations highlighted the complexity and specificity of a CW ban and soon a division between a BW and a CW ban was suggested.

The division of the two types of weapons was a very controversial point in negotiations at the CD.[262] The UK and the US supported the division and introduced a draft convention banning BW only.[263] The majority of states, including the SU, supported a joint prohibition and opposed the drafts on BW.[264] The debate came to an end when the SU withdrew from its position and submitted a joint draft with the US on a BW ban,[265] which resulted in the adoption of the BWC. As a result, from 1971 CW were considered on their own at the CD.

The debate on the division of CW and BW mainly revolved around the issue of verification and the fact that a ban on CW required a separate and more elaborate verification system than a ban on BW.[266] While verification of the ban on BW was expected to be easy, verification of a ban on CW would be extremely difficult. This was explained by the existence of large CW arsenals and by the widespread chemical industry with activities often undistinguishable from chemical warfare.[267]

Other factors favoured the division with BW and the conclusion of the BWC. The BW ban was made easier by the unilateral renunciation of biological means of warfare by the USA in 1969,[268] and followed up by other states. [269] In addition, the fact that BW were of lesser military use and interest than CW made their disarmament less of a 'military sacrifice' than was the case with CW.[270]

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[261] The United Nations Department for disarmament Affairs, *The United Nations and Disarmament'* (1985), 108-110.
[262] Ibid, 108.
[263] United Nations, *The United Nations and Disarmament: 1945-1970*, (1970), 358-359.
[264] Warren Heckrotte and Arthur Steiner, 'Arms Control Moratoria: Case Studies in Three Areas' in Bennett Ramberg (ed), *Arms Control Without Negotiation: from the Cold War to the New World Order* (1993), 71, 73.
[265] Blacker and Duffy (eds), n 16, 143.
[266] *SIPRI Yearbook 1969/70*, 197-199.
[267] Heckrotte and Steiner, n 264, 73.
[268] Ibid, 72.
[269] Myrdal, n 46, 276.
[270] Goldblat, 'Arms Control Agreements' in *SIPRI Findings*, n 76, 297, 306.

The verification problem and the differences between CW and BW justified the separate conclusion of the BWC; the CW ban was considered later on since it required longer and more elaborate negotiations to deal with the technical aspects of a verifiable ban. This partial but immediate solution was reluctantly chosen over a comprehensive but lengthier ban.[271] Unfortunately a severe drawback from this division was the risk that a ban on BW would postpone and perhaps compromise the conclusion of a ban on CW.[272] In order to avert this a provision was introduced in the BWC, expressly commanding that States work towards the earliest conclusion of a ban on CW.[273] However, it appears that these fears were well-founded in light of the lengthy and difficult negotiations of the CWC.

Some comments can be made about the division between BW and CW and its relationship to the nature of disarmament under international law. In the author's submission the existence of arsenals influences on the decision to disarm, discouraging or slowing disarmament. This, in turn, is directly related to the military interest of weapons. It is also possible that the division between CW and BW reflects yet again the reluctance to give up CW, since they are more useful militarily than BW. In turn this suggests that the disarmament of weapons is largely made possible by and depends upon their lack of military usefulness; the more military interest, the harder it is to ban and eliminate a category of weapons from states' arsenals.

Finally, verification is a key issue affecting the achievement of a ban on a category of weapons, affecting the conclusion of a disarmament agreement. The decision to ban and disarm weapons therefore depends on numerous factors, in this case highlighted by the contrast between BW and CW.

Numerous authors have dwelled at length on the separation between CW and BW. The details of the arguments for joining or dividing CW from BW are no longer relevant,[274] although the debate reflected issues likely to occur in CW negotiations.

Conclusion: The Difficulties of Negotiating a Ban on Chemical Weapons

This chapter concludes with a remark on the matter of verification of the ban on CW. The verification of disarmament, and more generally verification measures, are a

[271] The United Nations Department for disarmament Affairs, *The United Nations and Disarmament'* (1985), 109.
[272] Ibid; *SIPRI Yearbook 1969/70*, 197.
[273] Biological Weapons Convention art 9.
[274] The United Nations Department for disarmament Affairs, *the United Nations and Disarmament'* (1985), 108-109 and *SIPRI Yearbook 1969/70*, 194-197.

broad topic calling for a specific study. The CWC verification system is a key feature of the Convention, although it was the main difficulty in the conclusion of the CWC;[275] it was clearly highlighted with the division between the BW and CW bans.

The need for verification of a CW ban can be explained by the significant CW arsenals and by the vast civilian chemical industry.[276] Verification serves two distinct purposes: ensuring that CW capabilities are destroyed and that no CW production takes place from the chemical industry. An effective verification system is also necessary for the CW ban to have any strength and credibility.[277]

Verification of non-disarmament activities is justified by the similarities and closeness between military and civilian chemical activities,[278] and by the dual-use of chemicals. Dual-use implies that toxic chemicals and their precursors which can be used in chemical warfare also have legitimate applications in the civilian sector.[279] This aspect of verification is the most problematic because of the extensive civilian chemical activities existing in parallel with military chemical activities. The interests of the chemical industry (protection of chemical trade and of industry secrets) clash with the security objectives of the CWC.

Concerning disarmament activities, verification is a central aspect of the disarmament obligation; it is clearly necessary for the success of disarmament.[280] There were differing opinions on the means to achieve effective verification.[281] The main difficulty came from the Soviet Union's idea of verification of CW disarmament.[282]

The verification system was largely applauded and praised as a great and novel achievement, and as a contribution for arms control agreements.[283] However, concerning CW, 'absolute control' in a CWC has been said to be 'both unnecessary and unachievable', and that it was 'politically cumbersome' to insist on it.[284]

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[275] Trapp, 'Geneva Negotiations on Chemical Weapons' in *SIPRI Findings*, n 132, 347-350.
[276] Hyltenius, n 13, 8.
[277] Ibid, 9.
[278] Arms Control and Disarmament Agency, *Annual Report* (1997).
[279] Leah Ltiman, 'A Question of Chemistry: Controlling the Spread and Use of Chemical Weapons' (2005) 27 (3), Harvard International Review, 33.
[280] R.E. Roberts, 'Verification Problems: Monitoring of Conversion and Destruction of Chemical-Warfare Agents Plant' in SIPRI (ed) *Chemical Weapons: Destruction and Conversion* (1980) 129; *SIPRI Yearbook 1979*, 483 and Hyltenius, n 13, 9-12.
[281] Hyltenius, n 13, 9.
[282] Chapter 4 on Russian CW disarmament.
[283] Bastanov, n 128, 34.
[284] Trapp, 'Geneva Negotiations on Chemical Weapons' in *SIPRI Findings*, n 132, 345, 349.

The mechanisms envisaged under the CWC can therefore be envisaged as safeguards against major violations of the convention.[285] The success of the CWC remains determined by the good will of its member states to commit to CW disarmament, not by the existence of intrusive verification measures. Although they offer guarantees, they do not replace compliance or trust.[286] It is the author's belief that verification measures are not crucial to the realization of the disarmament goal.

Unfortunately verification difficulties slowed the negotiations of the CWC and eventually affected the realization of the elimination of CW. Concern about verification issues can be linked to disarmament issues which were overlooked during the CWC negotiations.

Verification took up most of the attention yet turned out not to be a major issue. Goldblat foresaw that the CWC verification system would meet its purpose and guarantees that no significant violation of the CWC would occur.[287] Furthermore he stated that 'the process of elimination of chemical weapons is likely to pose more problems than verification will.'[288] The author fully agrees with that statement, since it also highlights a gap between the solid consensus on the need to disarm CW and practical aspects of disarmament which were largely overlooked during the negotiations. This gap will be subsequently exposed throughout this study.

These remarks point to the general difficulty of CW disarmament, namely the gap between matters of 'political' nature such as verification which have drawn attention during the negotiations at the CD, and practical matters related to CW disarmament, which have mostly been neglected at the CD. In that respect, the history of negotiations of this CW ban does not really correspond to the requirements of CW disarmament.

Finally the negotiations on a CW ban also raise many theoretical questions about the arms control machinery, especially on the participation to disarmament efforts. Questions of participation are evoked in the following chapter with the goal of universal adherence to the CWC. However, the matter of participation in disarmament efforts is not thoroughly examined before the end of this study. The CW disarmament regime is detailed in the following chapter, taking into account the drawbacks of the CWC negotiations.

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[285] Myrdal, n 46, 297, 300.
[286] Ibid, 300.
[287] Goldblat, n 4, 109.
[288] Ibid.

Chapter 2: The Chemical Weapons Disarmament Regime

The Chemical Weapons (CW) disarmament regime is based on the consensus to ban CW by renouncing their use and eliminating them. Once the consensus for eliminating CW has been examined, the disarmament regime itself will be explored.

The main instrument for the disarmament of CW is the Chemical Weapons Convention (CWC), the product of two decades of negotiations and a lengthy ratification process and now in its ninth year of existence. There are other instruments aiming at or capable of achieving the disarmament of CW. The aim of this chapter is to provide a comprehensive overview of the different kinds of CW disarmament tools, their features, and which are successful at eliminating CW.

In accordance with the rest of this study CW disarmament regimes are examined from an effective and result-based disarmament perspective. However, although they have various sources, this study is limited to instruments resulting from international legal sources. The success of disarmament both corresponds to the successful implementation of these regimes and the subsequent achievement of the goal of effective CW disarmament. Based on the experience with CW, some of these disarmament instruments could be extended to any category of weapons.

An introductory section presents a very short typology of disarmament instruments. The first section focuses on the various 'conventional' instruments with compose the current CW disarmament regime, but mainly on the CWC. These 'conventional' sources and instruments of the CW disarmament regime are described and classified and the extent to which they contribute to the successful disarmament of CW is examined. The following section introduces other sources of disarmament which are not the result of a state initiative but are disarmament measures imposed under international law. The third section briefly looks into the recent evolution of the CW disarmament regime. This study concludes with a brief overview of the practical results of the CW disarmament instruments.

Introduction: the Different Sources of the Chemical Weapons Disarmament Regime

Disarmament can be brought about in various ways; a typology of available disarmament instruments can be drawn up. Arms control instruments are most often traditional, multilateral agreements; the CWC is one such instrument. Disarmament can also be the result of unilateral and voluntary initiatives undertaken by a state or

group of states without the conclusion of reciprocal international arrangements. These 'unilateral' disarmament measures refer to all measures which are not binding or reciprocated with obligations written in a legally-binding arrangement. 'Bilateral' CW disarmament corresponds to the US-USSR efforts on CW preceding the conclusion of the CWC. Finally, disarmament can also be imposed on a state or group of states, either by other States, for example following a war, or by an international organization; it can result from a treaty or a decision by an international organization.

Throughout this study the author distinguishes between conventional and imposed disarmament. Disarmament instruments labelled 'conventional' are legally or politically binding initiatives determined by the fact that they are undertaken voluntarily; these instruments are unilateral or multilateral. Imposed disarmament is defined by the fact that it is imposed upon a state and not undertaken freely.

Section 1: Conventional Sources of Chemical Weapons Disarmament

Conventional disarmament encompasses decisions to disarm CW, whether they are embodied in unilateral, bilateral or multilateral instruments. They are voluntary and freely consented to.

A. Unilateral Renunciation of Chemical Weapons

CW disarmament can be the result of a unilateral decision by one State or a group of States, which is then a 'collective' unilateral decision. Most unilateral disarmament measures are voluntary; some are obligatory.[289] They can be contained in an agreement or remain outside. They are characterized by the absence of reciprocity, and are usually not *stricto sensu* legally binding. A common example is the declaration of non-possession and intention not to acquire CW, or a moratorium on weapon possession and production.[290] Such unilateral declarations are one type of arms control confidence-building measures (CBM).[291]

Unilateral declarations are usually made in the context of multilateral arms control negotiations, which they complement.[292] They express states' intentions to contribute to international peace and security, often by renouncing the possibility of use or acquisition of certain weapons, in this case CW, and prohibiting them or their

[289] Lundin, n 57, 139, 140-146.
[290] Heckrotte and Steiner, n 264, 71.
[291] Goldblat, n 4, 3-4.
[292] Lundin, n 57, 146.

components on their territories. Most unilateral 'disarmament' declarations relate to WMD or nuclear weapons; CW are simply mentioned in these declarations. Such CBM can have an important role concerning nuclear weapons, but also with CW.[293]

Some authors point that unilateral measures may depend on 'reciprocal actions of others' or on conditions, implying an agenda beyond the unilateral decision.[294] Similarly Myrdal introduces the theory that states adopt unilateral measures in the expectation that other states will do the same.[295] For example, the US renunciation of BW production in 1969 was believed to spur negotiations on the BWC by putting pressure on the USSR to agree to a BW ban.[296] The US resumption of CW production in 1987 was undertaken with similar objectives.[297]

There are many examples of unilateral renunciation of CW by States or groups of States. Unilateral renunciation of CW often comes from groups of States or covers specific geographical areas, thus creating CW-free zones. For example, the 1991 Cartagena Declaration[298] promotes Latin America and the Caribbean as the first WMD-free zone.[299] Its States Parties commit to renounce the possession, production, development, use, testing and transfer of all WMD and [to] refrain from stockpiling, acquiring or retaining these weapons under any circumstances.[300] They also affirm their intention to be original signatories of the CWC, to participate in it and be bound by it.[301] Finally they underline the fact that militarily developed States have a particular responsibility concerning WMD.[302] Other, similar declarations include the Mendoza Agreement,[303] the Pakistan and India Joint Declaration on Chemical Weapons,[304] and more recently the Declaration of San Francisco de Quito.[305] There

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[293] Ibid.
[294] Heckrotte and Steiner, n 264, 71.
[295] Myrdal, n 46, 287.
[296] Heckrotte and Steiner, n 264, 75.
[297] Joseph Pilat, 'Technology Deployment and Denial: a Unilateral Approach to Arms Control' in Bennett Ramberg (ed), *Arms Control Without Negotiation: from the Cold War to the New World Order* (1993), 113, 128-9.
[298] *Cartagena Declaration on the Renunciation of Weapons of Mass Destruction*, signed on 4 December 1991, UN doc. A/Res/46/760 (*'Cartagena Declaration').*
[299] Cartagena Declaration, art 8.
[300] Ibid, art 2
[301] Ibid, art 6 and 7, respectively.
[302] Ibid, art 9.
[303] *Mendoza Agreement on the Prohibition of Chemical and Biological Weapons,* signed on 5 September 1991, Conference on Disarmament document CD/1126.
[304] *Joint Declaration by Pakistan and India on the Complete Prohibition of Chemical Weapons,* signed on 19 August 1992 ('*Pakistan and India Joint Declaration on Chemical Weapons').*
[305] *Declaration of San Francisco de Quito on the Establishment and Development of the Andean Zone of Peace*, signed on 12 July 2004, Conference on Disarmament document CD/1743.

have been other, unsuccessful attempts to renounce CW in certain geographical areas, for example the 1985 proposal for a CW-free zone in Europe.[306]

In the context of negotiations on a ban on CW, several unilateral renunciations of CW significantly built confidence, such as the US unilateral renunciation of CW production and first use in 1969, which was followed by similar renunciation by Sweden, Canada, the UK and the Netherlands.[307]

During the CWC negotiations other CBM included on-site visits of facilities, test-runs, and experiments with destruction methods and generally the obligation to cooperate in finding a destruction method.[308] Although an element of reciprocity is suggested in these measures, they have solved many technical, legal and political problems, contributing to the success of negotiations.

However, questions remain about the contribution of unilateral renunciation of CW, and more generally unilateral disarmament measures, to the disarmament of CW. The 'disarmament' nature of unilateral declarations remains unclear; they are not 'disarmament' obligations *stricto sensu.* They do not result in destruction or verification measures; there is no weapon elimination involved at all. Yet in the author's view they can be considered a 'preventive' disarmament instrument because States renounce the right to acquire, possess and use weapons, hence giving up the right to be possessors[309] and therefore excluding the possession and use of CW. Such a broad interpretation of unilateral measures would assimilate the accession to an existing multilateral disarmament agreement to a unilateral renunciation. The contribution of unilateral measures to the disarmament of CW is only indirect, yet their potential for the success of CW disarmament calls for some comments.

The strength of unilateral declarations can be played down to a certain extent as varies greatly according to their state author, the context in which they are made and their purpose.[310] It would be a mistake to think that all unilateral declarations on CW - or any other weapon - had the same impact. Their strength ranges widely. They

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[306] Jozef Goldblat, 'A Chemical-Weapons-Free Zone in Europe' in Marek Thee (ed) *SIPRI Findings: Arms and Disarmament'* (1986), 361-3.
[307] *SIPRI Yearbook 1969/70*, 188 and Myrdal, n 46, 276-7.
[308] *SIPRI Yearbook 1991*, 524.
[309] Lundin, n 57, 142.
[310] Robert P Kaldec, Allan P. Zelicoff and Ann M. Vrtis, 'Biological Weapons Control: Prospects and Implications for the Future', in Joshua Lederberg (ed) '*Biological Weapons: Limiting the Threat'* (1999), 95, 98-9; Rita R Colwell and Raymond A Zilinskas, 'Bioethics and the Prevention of Biological Warfare' in Raymond A Zilinskas (ed), *Biological Warfare: Modern Offense and Defense* (2000) 225, 230.

are a simple act of good will when coming from a state which never had any intention of having or never had any CW capability. However they are a significant contribution to disarmament negotiations when they occur at the beginning of negotiations and come from militarily powerful states.[311]

In the author's view the renunciation of CW by groups of states or in specific zones (regional measures) has much potential and such initiatives deserve more attention. Effective CW-free zones could create 'safe enclaves' from CW; such zones could exist in parallel and independently from the CWC yet contribute to its goals. Consequently participating states may not need to be bound by the CWC verification regime-thereby lightening the verification task-and be exempted from certain CWC obligations. An alternative to traditional, multilateral treaties, two-step treaties could be envisaged, with a provisional application based on the unilateral initiatives of its member states. In other words states having submitted credible unilateral CBM could be extended from some of the obligations of the treaty. More credit should be given to the fact that voluntary initiatives may bind their authors as arms control obligations would.

Questions still remain about the effect and intent of unilateral renunciation of CW and other unilateral measures. Could CBM change the course of negotiations? Although they do not weaken treaties, how can they strengthen existing treaties, and would their absence weaken them? In the case of a weak treaty, would unilateral measures be enough to compensate or even replace a multilateral instrument?[312] During the debate over the choice of the instrument to ban CW that preceded the CWC negotiations, unilateral measures to ban CW were envisaged but given very little credit.[313] It appears that although some political weight can be attributed to unilateral measures, they cannot seriously be envisaged as an alternative to multilateral instruments. It seems that the value of CBM in the CW disarmament regime can only be determined on a case-by-case basis.

Concerning the purpose of unilateral measures, although a security agenda can be attributed to them it does not appear to extend to CW since they are usually played down as a strategic weapon. In CW matters, CBM reflect, in the author's view, a

[311] Ibid.
[312] *SIPRI Yearbook 1969/70*, 186-8.
[313] Chapter 1, The Choice of the Type of Instrument to Ban and Eliminate Chemical Weapons.

genuine interest to renounce chemical warfare and enforce the prohibition to use them.

B. Bilateral Chemical Weapons Disarmament Agreements

The CWC is the main, but not the only instrument on CW disarmament. Following the conclusion of the BWC, bilateral talks between the United States and the SU for the conclusion of a legally-binding instrument banning and eliminating CW began simultaneously with the multilateral talks at the CD (CD). Although bilateral efforts did not fully succeed they contributed to the multilateral negotiations on CW.

Bilateral efforts on disarmament have a long history. General bilateral efforts on disarmament include the so-called Mc Cloy-Zorin Statement of 1961,[314] which sets forth principles for conducting disarmament negotiations; it is considered as a guide for disarmament negotiations.[315] Though not legally binding, the principles include a sensible reduction of armaments.[316]

Although the statement has no direct bearing on the current CW disarmament regime it suggests that better disarmament results can be achieved with bilateral efforts. Furthermore, even though this statement is now obsolete, it holds interest because beyond political declarations it focuses on practical aspects of disarmament. Another bilateral agreement (not specific to CW), the Weapons Destruction and Non-Proliferation Agreement,[317] contributed to cooperation in disarmament methods.

Bilateral negotiations on CW began in parallel with the negotiations at the CD with a US-USSR 'joint initiative' following the 1974 Moscow summit.[318] Negotiations were conducted between 1974 and 1980, and again in 1986-1990 after an interruption.[319]

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[314] *USA-USSR Joint Statement of Agreed Principles for Disarmament Negotiations*, commended in UN GA res 1722, 16th sess, (1961).
[315] Goldblat, n 4, 38-39 and SIPRI, *The Problem of Chemical and Biological Warfare: CB Disarmament Negotiations, 1920-1970,* (1971) vol 4, 230.
[316] SIPRI, *The Problem of Chemical and Biological Warfare: CB Disarmament Negotiations, 1920-1970,* (1971) vol 4, 330.
[317] *Agreement between the USA and Russia Concerning the Safe and Secure Transportation, Storage and Destruction of Weapons and the Prevention of Weapons Proliferation*, signed and entered into force on 17 June 1992, Conference on Disarmament document CD/1162 (*'Weapons Destruction and Non-Proliferation Agreement').*
[318] SIPRI (ed), *Chemical Weapons: Destruction and Conversion* (1980), 2 and Goldblat, n 4, 97.
[319] Ibid, 97, 100-1.

The outcome of these efforts is the 1990 Bilateral Destruction Agreement.[320] It provides for the cessation of CW production,[321] the reduction of stockpiles 'to low, equal levels' and for verification measures to ensure compliance.[322] Concerning disarmament its key provision is the reduction of CW stockpiles down to 5000 metric tons by 2002, which would have reduced 90 percent of the US CW stockpiles and 80 percent of the SU CW stockpiles.[323]

Disarmament operations would have started by December 31st 1992 at the latest[324] and taken place in stages, with 50 percent done by 1999. The agreement limits CW storage facilities to eight for each State, which must be located on their territory.[325] States are required to cooperate on 'methods and technologies for safe and efficient destruction of CW', which includes the construction and operation of destruction facilities.[326] A document on inspection procedures was to be negotiated separately, as it was not completed by 1990.[327]

The bilateral Destruction Agreement is a thorough ban on CW and a comprehensive disarmament instrument. However, it is not without flaws and imprecision. The composition of the remaining 5000 tons of CW stockpiles that states are allowed to keep is not regulated. This is a severe flaw as they could include the most potent CW or a wide variety of CW which may be produced on a large scale. Concerning the disarmament obligation, in case a state cannot meet its destruction quota, a justification may be requested but only if the other State has not destroyed a minimum amount of CW every year by 1995.[328] The downside of this is the silence between the parties regarding the destruction progresses as soon as they met the minimum yearly threshold. [329] In other words a State Party could get away with meeting the minimum destruction threshold only (of 1000 tons ach year) without risking any sanctions.

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[320] *US-USSR Bilateral Agreement on Destruction and Non-Production of Chemical Weapons and on Measures to Facilitate a Multilateral Convention on Banning Chemical Weapons*, signed 12 June 1990, Conference on Disarmament Document CD/1001, (*'Bilateral Destruction Agreement')*
[321] *Bilateral Destruction Agreement*, art 1 'General Provision and Areas of Cooperation' para 1 (b) and art 3 'Cessation of the Production of Chemical Weapons'.
[322] *Bilateral Destruction Agreement*, art 1 para 1 (c), art 4 'Destruction of Chemical Weapons' and art 5 'Inspection Activities'.
[323] Goldblat, n 4, 97 and SIPRI, *Yearbook of World Armaments and Disarmament 1991*, 515.
[324] *Bilateral Destruction Agreement*, art 4 paras 2 and 3.
[325] Ibid, para 9.
[326] Ibid, art 2 'Cooperation Regarding Methods and Technologies of Destruction'.
[327] Ibid, art 5 para 7.
[328] Ibid*,* art 4.
[329] Goldblat, n 4, 98.

There is much to learn from bilateral efforts on a CW ban. Some achievements of the CWC are in fact the result of technical and political work accomplished between the US and SU. The CWC is often thought to be heavily influenced by the bilateral agreement; it clearly benefited from such efforts.[330]

The bilateral agreement is clearly an ambitious disarmament undertaking. Unfortunately it never entered into force and therefore theoretically has only an historical interest. In the author's opinion much would have been gained had it entered into force, especially in terms of CW disarmament. It would have drastically reduced the CW arsenals of the two largest CW possessors and contributed to the global elimination of CW.[331] Previous experience with CW destruction would have both gained ground with the CW disarmament task and anticipated difficulties currently encountered with the disarmament of CW.

Despite this partial success, bilateral efforts contributed to multilateral talks by solving technical issues of destruction and verification.[332] Substantial progress was achieved on CW destruction technologies.[333] Much ground was also covered in the area of CBM. These included exchange of data on CW capabilities and intrusive verification measures, according to a Memorandum of Understanding dating back to 1989 which resulted in mutual on-site visits to CW facilities.[334] Politically the agreement was also significant as it unlocked key issues between the most important actors of the ban on CW.

In spite of these benefits the outcome of bilateral efforts on the global ban on CW can be toned down. The end of CW production, the destruction of the bulk of CW stockpiles by the two largest CW possessors increased confidence towards a global ban on CW. It can be suggested that the CWC might not have been concluded without these concessions from the US and USSR. In that respect bilateral negotiations gave political impetus to multilateral efforts.[335] Furthermore the bilateral agreement

[330] Hyltenius, n 13, 7.
[331] Ibid, 100 and *SIPRI Yearbook 1991*, 514.
[332] Hyltenius, n 13, 7-8; SIPRI *Yearbook of World Armaments and Disarmament 1991*, 533 and Walter Krutzsch and Ralf Trapp, *A Commentary on the Chemical Weapons Convention* (1994), 12.
[333] *Bilateral Destruction Agreement,* art 1 para 1 (a).
[334] *Wyoming Memorandum Of Understanding,* signed on 23 September 1989; Goldblat, n 4, 212 and *SIPRI Yearbook 1991*, 514-5, 518.
[335] Bastanov, n 128, 36 and *SIPRI Yearbook 1991*, 533.

supported the conclusion of a multilateral ban, and measures inciting other states to declare and renounce their own CW and join the CWC were adopted.[336]

However bilateral efforts were also viewed with mistrust and were criticized by many states. Allegedly they undermined and shortcut multilateral efforts. Although they supported a multilateral ban, bilateral efforts were not particularly welcome in the CD,[337] which no longer had the 'primary negotiating role'.[338] The CD put pressure on bilateral efforts and sought to 'reassert its multilateral negotiating role in the chemical talks.'[339] The criticism concentrated on the self-allocated right of the main two CW possessors to retain retaliatory CW capabilities, while every other state was encouraged to renounce all CW capabilities. The fact that the most important CW States were allowed to keep CW crystallized the opposition to bilateral negotiations.[340]

The debate between bilateral and multilateral negotiations on CW is now of no import since the CWC has entered into force and is recognized as the main convention on CW. However, it is not without interest when considering alternatives to lengthy multilateral negotiations,[341] either to extend to and prohibit other weapons, or to complete existing agreements (e.g. the BWC). There are pros and cons to both approaches.

On the one hand institutions like the CD are representative and democratic. The CD, like the UN, is largely governed by the idea that every State has a right to participate or be represented in arms control negotiations.[342] A downside of the wide participation and of the rule of consensus is that negotiations can be lengthy and be blocked easily by the inherent right of veto.[343] On the other hand, bilateral negotiations are founded on restricted and selective participation.

From a disarmament perspective a bilateral agreement between the most powerful States effectively and immediately deals with a substantial part of the issue

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[336] *Bilateral Destruction Agreement,* art 6 'Measures to Facilitate the Multilateral Convention' and *SIPRI Yearbook 1991*, 518.
[337] *SIPRI Yearbook 1991*, 534.
[338] SIPRI (ed), *Chemical Weapons: Destruction and Conversion* (1980) 3.
[339] Ibid.
[340] *SIPRI Yearbook 1991*, 514, 517; Goldblat, n 4, 100; Ledogar, n 11, 44.
[341] Bastanov, n 128, 31.
[342] Conference on Disarmament, General Information (2002) <http://disarmament2.un.org/cd/cd-backgnd.html> at 8 July 2005; Department for Disarmament Affairs, Weapons of Mass Destruction Branch Department for Disarmament Affairs (2002) <http://www.disarmament2.un.org/wmd> at 9 June 2005.
[343] 'Conference on Disarmament', United Nations Overview, 1, <http://esa.un.org/esaWeb/esaCalendar> at 7 March 2006.

of existing weapons. For example bilateral talks are result-based but also seek to ensure strategic balance between two powerful States, while attempting to achieve global arms control. Yet a downside of a bilateral instrument on CW is massive and uncontrolled proliferation of the weapons by other States. It may also overlook other States' existing or potential weapon capabilities.

It is the author's belief that these different types of instruments should not compete but instead complete and complement one another, since they seek similar goals; both improve international security from CW. Finally this debate suggests that disarmament results can be achieved with other instruments than traditional, multilateral arms control agreements and avoid traditional arms control structures and procedures. It can therefore also be proposed that should multilateral forums fail an alternative solution- bilateral, regional or any other partial solution - should be available. The most appropriate model of control of CW cannot be discussed at length in this study. Alternative methods of controlling CW are examined later in this study, as well as variations of the existing CW disarmament regime, within the model of multilateral agreement. However, not all, and especially the most recent, alternatives to multilateral agreements contribute to the existing CW disarmament regime. Therefore the different types of instruments must be considered with caution.

C. Multilateral Disarmament Instruments: the 1997 Chemical Weapons Convention.

The central instrument of the CW disarmament regime is the CWC, a traditional, multilateral arms control agreement. It is the current legal regime for CW disarmament. It is a recent and thorough instrument which is broadly adhered to.[344] The convention is a comprehensive disarmament and non-proliferation instrument. In many respects it is a unique achievement for the international law of arms control; from a disarmament perspective it is the first 'real' disarmament instrument.

The CW disarmament regime had two 'starting points', the opening for signature which marks the conclusion of negotiations, and the entry into force of the convention, with the deposition of the 65th instrument of ratification in 1997. In the

[344] Media and Public Affairs Branch, Technical Secretariat, *The Chemical Weapons Ban: Facts and Figures* (2006) OPCW <http://www.opcw.org/factsandfigures/index.html#participation> at 11 December 2006, as of 11 November 2006 the CWC has 181 member states.

meantime a Preparatory Commission ('PrepCom') was mandated with the provisional application of the convention.[345]

The aim of this section is to provide the legal background of the CW disarmament regime, and how that law contributes to the realization of the disarmament goal. The contents of that legal regime will be detailed, first with the main disarmament provisions, followed by some original characteristics of the CW disarmament regime. It must be kept in mind that the CWC is not without faults and imperfections.

1. Introduction to the Chemical Weapons Convention

The Chemical Weapons Convention is a long and detailed treaty with three voluminous Annexes which 'form an integral part of the Convention'.[346] An international organization, the Organization for the Prohibition of Chemical Weapons (OPCW), was created upon the convention's entry into force to implement it and to verify compliance with it.

This study distinguishes between the disarmament and the non-disarmament aspects of the CWC; the former are relevant to this study. The CWC covers all chemical activities, military or civilian, authorized or unauthorized. The disarmament aspect covers most former and current military activities. It includes provisions on disarmament, non-proliferation but also verification and cooperation. Disarmament obligations are found in Articles 1 to 5 of the Convention, corresponding to Parts IV and V of the Verification Annex. Activities not relating to disarmament can be classified as non-proliferation, international assistance and cooperation, and international cooperation in the peaceful use of chemistry.[347] These other chemical activities form the bulk of the CWC; the disarmament regime is only a small part of the convention's text.

Although only the disarmament aspects of the Convention are examined, all chemical activities are closely related and sometimes have a direct bearing on CW disarmament. For example former military facilities may be converted for peaceful,

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[345] Michie, n 223, 345-377; OPCW, *Genesis and Historical Development* <http://www.opcw.org/en/CWC_History.html> as of 8 July 2005.

[346] Chemical Weapons Convention Annex on Implementation and Verification ('Verification Annex'); Chemical Weapons Convention Annex on the Protection of Confidential Information ('Confidentiality Annex'); Chemical Weapons Convention Annex on Chemicals ('Chemical Annex') and *Chemical Weapons Convention,* art 17: 'Status of the Annexes'

[347] Hassan Mashhadi, 'The OPCW and the Struggle Against Chemical Terrorism' (2001), *OPCW Synthesis*, 1.

civilian purposes; unchecked exports of restricted substances could hide covert military programs. Non-proliferation measures such as the prohibition to move CW directly influence disarmament obligations.

2. The Disarmament Obligation

The basic disarmament provision is found in the first article of the CWC which sets out the obligation to disarm all CW, abandoned CW, and CWPF.[348] This Article clearly indicates that the object and purpose of the treaty is the complete prohibition and elimination of CW. The agreement on the principle of total, complete and irreversible destruction of all CW is the product of a difficult negotiation.

Article 1 also contains the CWC's other 'basic' obligations and defines the scope of the Convention. It indicates the main prohibited activities, namely the development, production, acquisition, stockpiling, detention, transfer of CW (non-possession and non-proliferation). [349] This includes their use, the military preparations for such use, and the assistance or encouragement to 'engage in any activity prohibited to a State Party under this Convention.'

Article 1 also prohibits the 'use of riot control agents as a method of warfare.'[350] The definition and use of riot-control agents for law enforcement is now an issue that poses difficulties of interpretation with the growing interest in non-lethal weapons (NLW).[351] Although the matter of NLW is beyond the scope of this study in the author's view this interest is in direct opposition with the purpose of the CWC and compromises the CW disarmament objective. These other obligations relate only indirectly to the disarmament of CW. However, they complete the disarmament regime and altogether constitute the comprehensive ban on CW.

The disarmament obligation is also contained in Article 4 'Chemical Weapons' for CW and in Article 5 'Chemical Weapons Production Facilities' for CWPF.[352] Article 4 details the disarmament obligation under Article 1 and the related prohibitions concerning CW. It contains the obligation to destroy CW according to the 'order of destruction', which is defined as 'the agreed rate and sequence of

[348] Chemical Weapons Convention art 1 paras 2, 3 and 4 respectively.
[349] Ibid, para 1.
[350] Ibid, para 5.
[351] *SIPRI Yearbook 2003*, 662-5; Kerry Boyd, 'U.S Grapples with Use of Nonlethal agents' (2003) 33 (3), *Arms Control Today*, 44 and Brad Knickerbocker, 'The Fuzzy Ethics of Nonlethal Weapons; Pentagon Wants to use Riot-Control Agents in Iraq, but Critics say it's Chemical Warfare' *Christian Science Monitor* (Boston) 14 February 2003, 2.
[352] Chemical Weapons Convention arts 4 para 6 and 5 para 8.

destruction.'[353] This corresponds to the timeframe for CW disarmament; destruction must begin not later than two years after the Convention enters into force for the State Party and finish not later than 10 years after the convention enters into force.[354] The convention indicates that this does not preclude States from destroying CW at a faster rate.[355] The destruction of CWPF follows similar obligations. Concerning the costs of CW disarmament Article 4 mentions that the costs of CW destruction must be met by states Parties.[356]

3. The Scope of Chemical Weapons Disarmament Under the Chemical Weapons Convention

Chemical warfare has multiple aspects and CW disarmament has many ramifications. Numerous activities are therefore covered by the CW disarmament regime and fall under a multitude of disarmament obligations. Following the presentation of the basic disarmament obligation the scope and object of the disarmament regime must be defined before disarmament can be envisaged.

CW and CWPF are defined in great detail in Article 2, 'Definitions and Criteria,' along with other significant terms used in the Convention. These detailed definitions delimit what the obligations of Article I apply to.[357] Concerning the disarmament of CW they indicate what to declare and what to destroy. The article applies only 'for the purposes of this Convention', implying that these definitions apply to all provisions of the CWC, but also that they do not apply to the Annexes which have their own definitions and criteria.[358] The criteria used for the definition of CW are examined later among the characteristics of the CWC. It can be remarked that such a long and precise article to define a term in a convention's is unusual.[359] However, the detailed definition of what falls under the scope of the CWC can be considered to be an improvement specific to the CW disarmament regime.

Concerning the scope of the CWC in light of its member states' obligations the convention uses an extensive set of criteria to determine the responsibility of a State Party over CW or CWPF. CW or CWPF owned or possessed by a State or 'in

[353] Ibid art 4 para 6.
[354] Ibid.
[355] Ibid.
[356] Ibid para 16.
[357] Wagner, n 228, 17.
[358] Verification Annex, Part 1 'Definitions' and Krutzsch and Trapp, n 332.
[359] Chemical Weapons Convention art 2 and Krutzsch and Trapp, n 332, 23.

any place under its jurisdiction or control' (the criteria not working cumulatively) entitle this State to declare and eventually destroy these CW and CWPF. The realization of possession or ownership or jurisdiction or control avoids loopholes which may be used by States for not taking responsibility over CW or CWPF. This especially applies to CW stationed or abandoned on the territory of another State, or CW on a State Party's territory but owned by a State not Party to the Convention.[360] Member states are involved with the disarmament of their own CW but also of CW simply located on their territory.[361]

The responsibility criterion is particularly useful concerning old and abandoned CW in areas where no member state has territorial jurisdiction or control. The criterion obliges States to take responsibility and remove their weapons from these places. It also solves the problems related to formerly sea-dumped or buried CW which are discovered. Finally CW which are discovered after the initial declaration by the State Party must be 'reported, secured and destroyed' like any other CW.[362] The temporal scope of the CWC therefore extends beyond the time allocated to states to declare their CW capabilities and, it can be assumed, beyond the destruction period in case new CW are discovered.

Various activities related to chemical warfare fall under the scope of the CWC, although not all of them result in disarmament obligations. The CWC scope is wide but varies according to certain obligations. Member states must declare and specify the 'precise location, nature and general scope of activities' of 'other facilities', that have been 'designed, constructed or used…primarily for the development of CW'.[363] All dual-use complexes and facilities are covered by this obligation but do not result in disarmament. In 2003, eight States had declared 25 of these facilities.[364]

There are other exemptions in the material scope of the CWC. Article 4 exempts old and abandoned weapons from the destruction obligation; they are submitted to an obligation of report and information to the extent that it is possible.[365]

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[360] Chemical Weapons Convention art 3 paras 1(a) (i, ii, iii) and (c) (i, ii, iii)) and Krutzsch and Trapp, n 332, 48.
[361] Chemical Weapons Convention art 4 paras 1 and 11.
[362] Chemical Weapons Convention art 3 para 9.
[363] Ibid para 1 (d).
[364] *Report of the OPCW on the Implementation of the Chemical Weapons Convention in 2003*, ninth Session of the Conference of the States Parties; document C-9/5, 30 November 2004, 3
[365] Chemical Weapons Convention art 3, para 1 and Verification Annex Part 4 (B): 'Old and Abandoned Chemical Weapons'.

Land-buried and sea-dumped CW also do not fall under the scope of the obligations of Article 4.[366]

4. Other Obligations Related to the Disarmament of Chemical Weapons

The destruction obligation is the central aspect of the CW disarmament regime. However, there are other key obligations which form an integral part of the CW disarmament regime and are necessary to its accomplishment. These other obligations therefore have a direct bearing on the disarmament of CW and complete the destruction obligation set out in Article 1.

Once the CWC enters into force its member states must declare their CW capabilities. Under Article 3, 'Declarations', member states must provide an initial declaration within 30 days of the entry into force of the Convention for that State.[367] The initial declaration separates the CW possessors States from other States Parties; Article 3 is described as a 'sorting article,' [368] it identifies which are the 'have' and 'have-nots. This is therefore quite decisive from a disarmament perspective since only states having declared CW are considered possessors and fall under the CW disarmament regime.

The scope of declarations under Article 3 is quite extensive and demanding for CW possessors. The initial declaration covers CW but also CWPF, old and abandoned CW, which are defined according to the criterions and definitions of Article 2. Concerning CWPF, similar declaration obligations apply under Article 3.

CW States must 'specify the precise location, aggregate quantity and detailed inventory' of their CW,[369] in accordance with the Verification Annex.[370] The obligation to declare CW depends on the application of the responsibility criterion mentioned above. Consequently States must report the CW and CWPF located on their territory, even though they are owned or possessed by another State. States which possess or own CW or CWPF located 'under the jurisdiction or control of another State' must report them as well. [371] Ideally, declarations between the 'Territorial' State and the possessor or owner State ('Abandoning' State) would

[366] Chemical Weapons Convention art 4 para 17.
[367] Chemical Weapons Convention art 3 para 1.
[368] Krutzsch and Trapp, n 332, 33.
[369] Chemical Weapons Convention art 3 para 1 (vii).
[370] Verification Annex Part 4 (A) paras 1,2 and 3.
[371] Chemical Weapons Convention art 3 paras 1 (a) (iii) and (c) (iii) and Verification Annex Parts 4 (A) para 4 and Part 5 para 2, respectively.

overlap. An agreement between them must be reached to determine which of them is responsible for the removal and destruction operations,[372] as it is currently the case between Japan and China. This overlap can be seen as a way to cross-check the declarations and see if they correspond. It also ensures that no CW or CWPF is forgotten in case not all CW States are members of the CWC.

Old and abandoned chemical weapons are covered by the CWC; they also must be declared and 'all available information' on them provided.[373] However, these are exempted from the obligation to provide a plan of destruction, and nothing is said on the closure of old plants.[374] Article 3 does not apply to any CW and CWPF under the responsibility of a State before 1946. It has other exemptions from the initial declaration for sea-dumped and buried CW (CW already disposed of) as long as the latter remain buried. The decision to exempt these CW is 'at the discretion' of the State Party.[375] Finally under Article 3 transfers of CW and 'equipment for the production of CW' must also be declared.

Article 3 is relevant only when considered with the objectives set out in Article 1 and the definitions of Article 2, which are necessary for the declarations. Together, Articles 2 and 3 determine the scope of the obligations under Article 1.[376]

The declaration obligation directly relates to disarmament since it determines which states fall under the CWC disarmament regime. Its successful implementation also gives an estimate of the global chemical warfare capability and of that of each member. It therefore determines the destruction effort which can be expected under the CWC disarmament regime. Furthermore for the concerned states the declaration obligation extends beyond the initial declaration, to more specific disarmament declarations.

States having declared possession of CW must submit three more declarations on their destruction activities. The first contains detailed annual plans for CW destruction which must be submitted 'not later than 60 days before each annual destruction period begins'; the plans include the stocks to be destroyed during the destruction period.[377] An annual declaration on the implementation of the plans for

[372] Verification Annex Part 4; Krutzsch and Trapp, n 332, 47 and SIPRI *Yearbook of World Armaments and Disarmament* 2003, 658.
[373] Chemical Weapons Convention art 3 para 1 (b) and Verification Annex Part 4 (B).
[374] Chemical Weapons Convention art 5, Krutzsch and Trapp, n 332, 80.
[375] Chemical Weapons Convention art 3 para 2.
[376] Krutzsch and Trapp, n 332, 26.
[377] Chemical Weapons Convention art 3 para 7 (a).

destruction must be submitted by the State within 60 days following the end of each destruction period.[378] A final declaration at the completion of the whole destruction process is required.[379] States which join the convention after its entry into force must begin the destruction process 'as soon as possible.'[380]

The declaration obligation extends to riot-control agents, although they only have an indirect interest for CW disarmament. Their 'chemical name, structural formula and Chemical Abstracts Service (CAS) registry number' must be specified, and the declaration must be updated within 30 days of any change.[381] At this point there is a discrepancy in the convention; it authorizes chemicals and precursors for 'law enforcement purposes' but only riot-control agents are defined and subject to detailed declaration.[382] It means that chemicals other than riot-control agents may be used as long as it is for law enforcement. But there is a risk that CW may be used, 'legitimized' by the purpose of law enforcement.[383] In this case the difference between the objective definition (riot-control agents) and the subjective definition (purpose) creates a loophole. The author understands that this loophole may affect the destruction obligation, which may overlook the disarmament of certain CW once they are labelled as law-enforcement agents.

Other disarmament obligations are triggered by the initial declaration under Article 3. Following this declaration, CW possessors must provide a 'general plan for destruction' for CW and CWPF in accordance with the relevant parts of the Verification Annex.[384] The general plan for destruction reflects the State's approach to the destruction effort; it

> shall provide an overview of the entire national chemical weapons destruction programme of the State Party and information on the efforts of the State Party to fulfill the destruction requirements contained in this Convention[385]

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[378] Ibid, para 7 (b).
[379] Ibid, para 7 (c) .
[380] Ibid, para 8.
[381] Ibid, para 7 (e).
[382] Krutzsch and Trapp, n 332 and SIPRI *Yearbook of World Armaments and Disarmament* (2003), 661.
[383] John Hart, 'Nuclear, chemical and Biological weapon-related trends' (paper presented at 'the Balance of Power In Europe 2035: Implication for Defence and Security', Solna, Sweden, 13-14November 2003); see also SIPRI, *Yearbook of World Armaments and Disarmament*, 2003, 659-664.
[384] Chemical Weapons Convention art 3 para 1 (a) (v) on and para 1 (c) (v) on CWPF; Verification Annex Part 4 (A) para 6 and Part 5 para 6, respectively.
[385] Verification Annex Part 4 (A) para 6 (a).

It will therefore reveal if a State is well-prepared to destroy its CW or not, or if it will require assistance for disarming. Some States have been late in providing a destruction plan, which causes delays and exposes difficulties related to destruction.[386]

Article 3 is significant for the disarmament goal. It is the starting point of the disarmament 'process' and makes member States responsible for providing correct information.[387] It is unclear whether non-compliance with this obligation leads to sanctions. Article 3 therefore marks the beginning of destruction obligations for CW States.[388] Once CW are declared they are 'immobilized', the possessor State is prohibited from moving them, except to a destruction facility.[389]

Article 3 also marks the starting point of international verification activities,[390] indicated with the obligation of CW possessors to provide access to their CW and CWPF for international verification and monitoring. Following the initial declaration on CW possession, States must provide immediate, on-site and unimpeded access to all CW, which are 'subject to systematic verification.' [391] Access to CW and to the locations where they are stored or destroyed [392] is meant to verify the declarations submitted by the States.[393]

There are other obligations directly relating to CW disarmament and which do not relate to Article 3; among them is the human safety and environmental protection. A general obligation of safety towards people and of environmental protection must be respected during all operations involving CW.[394] CW possessors are also prohibited from resorting to certain destruction methods that are harmful to the environment.[395] Furthermore cooperation is expected between the States Parties for information and assistance concerning methods and technologies 'for the safe and efficient destruction of CW'.[396] This cooperation takes the shape of bilateral

[386] Michael Nguyen 'Albania to Receive Nunn-Lugar Assistance' (2004) 34 (10), *Arms Control Today*, 41-41; Goldblat, n 4, 106.
[387] Ledogar, n 11, 52.
[388] Chemical Weapons Convention art 3 para 1
[389] Chemical Weapons Convention art 4 para 4.
[390] Ibid.
[391] Ibid.
[392] Ibid, para 5
[393] Verification Annex Part 4 (A).
[394] Chemical Weapons Convention arts 4 para 10 and 5 para 11.
[395] Verification Anna Part 4 (A) para 13.
[396] n 34 and Chemical Weapons Convention art 4 para 12.

agreements, or occurs 'through the Technical Secretariat.'[397] As the difficulties of CW disarmament will show these requirements have turned out to be major obstacles in the disarmament of CW.

5. The Disarmament of Chemical Weapons Production Facilities

The disarmament obligations concerning CWPF are very similar than those on CW. They are contained in Article 5, 'Chemical Weapons Production Facilities'. It applies to all CWPF which are subject to an initial declaration. These are subject to systematic on-site verification and imply an obligation for States to provide access to the facilities.[398] A general obligation of destruction[399] and the corresponding declarations[400] are specified. Destruction of CWPF must also respect the safety of people and the protection of the environment.[401] The relationship with other, similar agreements (on verification and destruction of CWPF) follow the same rules than agreements under Article 4,[402] as do the costs[403] and the deadlines for destruction.[404]

The main differences with Article 4 relate to the specificities of CWPF. Article V requires the immediate cessation of activities at CWPF and their closure.[405] It prohibits the construction of new facilities or the modification of ongoing activities in existing facilities.[406] The only accepted exception is for the use of such a facility 'for purposes not prohibited under the Convention,' following a decision of the OPCW, and under certain conditions.[407] Conversion of facilities for authorized purposes is therefore allowed, as long as the facility cannot be re-converted into a CWPF.[408] A recent decision has allowed such conversion.[409]

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[397] Ibid; Chemical Weapons Convention, art 4 para 5; OPCW Decision 'Model facility agreement for Chemical Weapons Destruction Facilities' C-V/DEC.23, 19 May 2000; see also Verification Annex Part 3 'General Provisions for Verification measures Pursuant to Articles 4, 5 and 6 paras 3 and 8 and Verification Annex Part 1 'Definitions', para 19.
[398] Chemical Weapons Convention art 5 paras 3 and 6.
[399] Ibid, para 8.
[400] Ibid, para 9.
[401] Ibid, para 11.
[402] Ibid, paras 16 and 17.
[403] Ibid, para 19.
[404] Ibid, para 8.
[405] Ibid, para 4.
[406] Ibid, para 5.
[407] Chemical Weapons Convention art 6 'Purposes not prohibited under the Convention.'
[408] Chemical Weapons Convention art 5 paras 13 and 14.
[409] Conference of the States Parties, '*Request by the Libyan Arab Jamahiriya to Use the Chemical Weapons Production facilities Rabta Pharmaceutical Factory 1 and Rabta Pharmaceutical Factory 2 (phase II) in Rabta, the Libyan Arab Jamahiriya for Purposes Not Prohibited Under the Chemical Weapons Convention'*, OPCW document C-9/DEC.9, ninth session (30 November 2004).

6. Other Obligations Relating to Chemical Weapons Disarmament.

There are other articles relating to CW disarmament and which also determine the scope of the CW disarmament regime by defining which activities are authorized, must end or be controlled. Article 6, 'Activities Not Prohibited Under This Convention', sets out what the civilian chemical industry is permitted to do or not to do under the convention. These activities are of no direct concern for disarmament activities as long as they fall within the purposes authorized under the convention.[410]

Article 7, 'Measures to Redress a Situation and to Ensure Compliance, Including Sanctions' solves non-compliance problems. It is described as the 'principal safeguard to protect States against violation of basic obligations by other States Parties.'[411] It contains a variety of measures which can be adopted 'internally' by the OPCW against states parties,[412] but also by the UNGA or the UNSC if they constitute breaches or threat to international peace and security.[413] The subsequent relationship between the OPCW and UN institutions, especially the UNSC, has been a source of concerns. The wording of the article and the respective competences of the institutions have caused fear of concurrence or overlaps between the institutions mandated with enforcing the CWC obligations.[414] This relationship is not yet defined, which raises questions about international sanctions, including on disarmament matters. Whether sanctions related to disarmament correspond to sanctions for breach or threat to international peace and security remains undetermined.[415]

Article IX on challenge inspections is of the utmost importance in the CWC.[416] It allows for intrusive on-site inspection at any facility in a State Party on very short notice. The State cannot refuse the request, which is made by another State and authorized by the Executive Council. This possibility is useful for resolving suspicions, questions or concerns about compliance, as long as the request is well founded and not abusive.[417] Although it does not relate to CW disarmament specifically, it is in theory a very powerful tool for verifying compliance and

[410] Chemical Weapons Convention, art 6.
[411] Wagner, n 228, 22.
[412] Chemical Weapons Convention, art 12 paras 1-3.
[413] Ibid, para 4.
[414] Krutzsch and Trapp, n 332, 220.
[415] Chapter 2, 'Chemical Weapons Disarmament Imposed Upon States'.
[416] Chemical Weapons Convention, art 9 'Consultations, Cooperation and Fact-Finding', paras 8-25.
[417] Ibid, para 9.

enforcing the provisions of the CWC on a reluctant State. It is also one of the most original innovations of the CWC and the first of such verification instrument.[418]

7. Verification Activities

Verification activities relate to the CW disarmament regime with which they are interrelated. The CWC verification regime is a broad topic calling for a separate study, although part of this regime is directly related to disarmament obligations.

The Verification Annex is the technical counterpart of the legal obligations contained in the Articles of the CWC. As its name indicates, it was drawn up for verification purposes; its provisions are established to facilitate knowledge, documentation and access to the activities imposed under the Convention. Verification and implementation go hand in hand; the verification system testifies that the CWC is implemented; it is directed as much towards successful implementation as towards satisfactory verification.

The verification of CW and CWPF disarmament is embodied in Parts IV and V of the CWC Verification Annex, respectively. Parts IV and V correspond to the obligations in Articles I, IV and V. The Verification Annex provides the technical details and necessary guidelines to implement the obligations. It is therefore quite technical, thorough and dry. The Verification Annex introduces specific vocabulary in relation to CW and CWPF matters, which is not used in the Convention's Articles.

Part 4 (A) of the Verification Annex, 'Destruction of Chemical Weapons and its Verification Pursuant to Article 4' contains the requirements for CW declarations, storage facilities, destruction and verification. It clarifies the contents and purposes of the declarations of CW, the transfers and plans for destruction under Article 3 and their format.[419] It also details measures for securing and monitoring storage facilities.[420]

Concerning the destruction obligation the Annex details the principles and methods for destruction (how to destroy), the order of destruction (steps of the process) and the contents and mandatory provisions of plans (final and annual).[421] In that respect the Verification Annex is therefore significant for the destruction process. Furthermore the deadlines, intermediate and final, as well as the process to extend

[418] Wagner, n 228, 21; Goldblat, n 4, 221, 222.
[419] Verification Annex Part 4 (A) paras 1-6, 29-36.
[420] Ibid, paras 7-11.
[421] Ibid, paras 12-19.

them, are described.[422] The verification measures themselves are also explained in great detail; they include inspections, visits, monitoring, reports, instrumentation and equipment.[423]

The verification of CWPF corresponds to Part 5 of the Verification Annex, 'Destruction of Chemical Weapons Production Facilities and its Verification Pursuant to Article 5'. It is similar than Part 4 although its scope is generally wider since it includes CWPF but also destruction facilities, converted facilities, facilities the purpose of which is not prohibited under the convention, and transfers and receipt of CW production equipment.[424]

Part 5 describes the contents, purposes and format of the declarations on facilities. As with CW, facilities must be declared by the owning or possessing State Party, but also by the State Party on whose territory they are located.[425] It provides principles, methods and guidelines for the maintenance of storage facilities.[426] All verification requirements also apply to facilities not to be destroyed immediately but which are first temporarily converted into chemical weapons destruction facilities.[427] The conversion process is greatly detailed; many safeguards against misuse of facilities or their re-conversion into activities prohibited by the convention are offered.[428]

Concerning destruction, Part 5 also specifies plans for destruction, which includes general and annual plans (the order of destruction), as well as reports on destruction to be submitted.[429] Final and intermediate deadlines corresponding to destruction periods are also set forth in the Annex.[430] The verification process of all facilities is detailed at the end of the Annex.[431] As with the verification of CW disarmament, verification of the destruction steps, the closure, the conversion of facilities and all related documents, monitoring procedures and equipment are provided for in the Annex.

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[422] Ibid, paras 20-28.
[423] Ibid, paras 37-70.
[424] Verification Annex Part 5 paras 1-5.
[425] Chemical Weapons Convention art 5 para 2.
[426] Verification Annex Part 5 paras 11-17, 26-31.
[427] Ibid, paras 18-25.
[428] Ibid, paras 18-25, 64-79.
[429] Ibid, paras 6-10, 32-35.
[430] Ibid, paras 28-31.
[431] Ibid, paras 43-63.

There is some criticism that the Verification Annex is too detailed in some areas but not detailed enough in others where precision is needed.[432] Yet the Verification Annex appears to be satisfactory for determining what is expected of States Parties and provides good guidance for implementation of the convention.

An entirely different aspect of the verification regime concerns the relationship between the verification of disarmament under the CWC and other, similar disarmament agreements on CW. The convention organizes this relationship with these other agreements (bilateral or multilateral) which may exist between its States Parties in matters of CW disarmament and storage verification. The CWC adjusts with these agreements to 'avoid unnecessary duplication.'[433] The CWC and other CW disarmament agreement complement each other towards the same goal,[434] yet the other agreement must not 'affect' the State's Party's obligation to declare CW.[435] The intention is to avoid disarmament done covertly or unaccounted for. Therefore the Organization must be kept 'fully informed' and has a right to monitor the implementation of those parallel agreements. In the author's opinion it implies that the CWC has precedence over these agreements. The OPCW would then have a 'coordinating' role, harmonizing the implementation between the various conventions. Since the other agreements cannot be contrary to the CWC, the OPCW has authority on CW matters. The CWC is therefore the standard norm on CW matters and other agreements must agree with it. Such precedence limits the potential and interest of an extended comparison between the CWC and similar instruments controlling CW. Although alternatives exist, among multilateral instruments, the CWC remains the main instrument to achieve CW disarmament. This role of the CWC can be attributed to its uniqueness and originality in the international law of arms control. The characteristics of the CWC disarmament regime highlight this specific role and status of the CWC.

D. Characteristics of the Chemical Weapons Convention

The CW disarmament regime is mostly the product of the 1997 CWC. Its main obligations relating to disarmament have been examined; comments on the characteristics of the CWC are now called for. These comments are introduced as

[432] Bastanov, n 128, 31.
[433] Chemical Weapons Convention art 4 para 13.
[434] Ibid, para 13 (a).
[435] Ibid, paras 13 and 15.

remarks on this regime and how it stands out in the international law of arms control. The characteristics of the CWC highlight the significance and the originality of the CWC in the international law of arms control, and more specifically what makes the CW disarmament regime so unique.

1. Definitions of the terms used by the Chemical Weapons Convention

A first comment can be made on the CWC's use of extensive definitions which clearly delimit its object and scope. Definitions are an original and practical improvement from other arms control and disarmament instruments, which do not usually define their object. In the case of the CWC definitions are necessary in light of the proximity between civilian activities and prohibited chemical warfare activities.

Article II offers an extensive definition of CW, which 'together or separately', include toxic chemicals, their precursors, munitions, devices and equipment 'specifically designed' to be used as or serve CW purposes.[436] 'Toxic chemicals' and 'precursors' are also defined in detail.[437] The definition of binary weapons includes their 'key components' and other 'multi-components systems.'[438] All these components are considered CW and fall under the CWC disarmament regime. They are further detailed in Part I of the Verification Annex and in articles 3 and 4.

In order to define CW the convention uses both an objective criterion based on toxic properties of chemical agents, cumulated with a subjective criterion, the 'general purpose criterion'.[439] According to the objective criterion CW and similar toxic chemicals are listed in three 'Schedules' contained in the CWC Chemicals Annex. These scheduled chemicals are prohibited and fall under the disarmament obligation regardless of their purpose, as they are considered CW and cannot be used for any other purpose. The subjective, general purpose criterion is a novelty and a characteristic of the CWC. It defines as CW all chemicals, even inoffensive, which are used for a CW purposes. These chemicals also fall under the definition of CW and under the CW disarmament regime. The cumulative criteria make for an extensive definition and imply that the definition of CW is not limited to the chemicals in the Schedules. Non-scheduled chemicals used for CW purposes are therefore defined as

[436] Chemical Weapons Convention art 2 para 1.
[437] Ibid, paras 2 and 3, respectively.
[438] Ibid, para 4.
[439] Chemical Weapons Convention art 2.

CW. The schedules only have an illustrative value; they do not define the full scope of CW. [440]

CWPF are similarly defined in the CWC; they are the 'second fundamental definition' of this Article.[441] With CW they are the main object of the disarmament regime; they must also be declared and destroyed.[442] CWPF comprise 'equipment and constructions, including buildings', 'filling equipment and facilities', 'assembly lines' and 'loading lines.'[443] By this definition whole complexes are likely to fall under its scope including facilities not directly involved in CW production. The criterion used to define CWPF is less subjective than the one used for CW; it is based on the product coming out of a facility, not on the purpose of the facility.[444]

Old CW are also defined in the convention; they are CW produced before 1925-which are exempted from the definition of CW- or CW produced between 1925 and 1946. According to Article II and the corresponding part of the Verification Annex,[445] if the Technical Secretariat declares the latter old and 'deteriorated to the extent that they can no longer be used as CW', they are exempted from the disarmament obligation. The authors of the CWC commentary describe the definition of old CW as a 'sorting mechanism,'[446] exempting some weapons from destruction. The Technical Secretariat determines the condition of the weapons, the threat they pose and therefore their qualification as a CW.[447] However, they must still be declared.[448] In the author's view it is important that this 'sorting out' is not the responsibility of the State Party but that of the OPCW since it exempts some CW from the disarmament regime.

'Abandoned Chemical Weapons' are defined as CW which have been abandoned on the territory of another state; they also fall under the scope of the convention and the disarmament obligations.[449] They may be old CW and belong to both categories. This detailed article is important for it determines the responsibilities between the 'Territorial' State (on whose territory the weapons were abandoned) and

[440] Krutzsch and Trapp, n 332, 26-7.
[441] Ibid, 36.
[442] Chemical Weapons Convention arts 1, 3 and 5 and Verification Annex Part 5.
[443] Chemical Weapons Convention art 2 para 10.
[444] Krutzsch and Trapp, n 332, 28.
[445] Verification Annex Part 4 (B) 'Old Chemical Weapons and Abandoned Chemical Weapons'.
[446] Krutzsch and Trapp, n 332, 33.
[447] Verification Annex Part 4 (B); Krutzsch and Trapp, n 332, 34.
[448] Chemical Weapons Convention art II para 5 (b); Verification Annex Part 4 (B).
[449] Chemical Weapons Convention art II para 6.

the 'Abandoning' State (which abandoned the CW). If both are CWC member states the Abandoning State must destroy abandoned CW following their declaration and removal, according to arrangement or agreement with the Territorial State.[450] If only the Territorial State is a member state and has not succeeded in obtaining the removal of the weapons within two years of the entry into force of the CWC, it must destroy the weapons abandoned on it territory itself.[451] It is only if the Abandoning State is member of the CWC and its weapons are located on the territory of a State not party that it is exempted from destruction obligations.

2. The Cut-off Dates and Deadlines of the Chemical Weapons Convention

The convention operates according to cut-off dates which determine if and when obligations apply to a State Party. Various definitions rely on these dates which act as an excluding or including criteria. For example it excludes old weapons and weapons which cannot be properly accounted for from the definitions, and exempts them from the disarmament obligations.

The year 1925 is the first cut-off date. It exempts any CW and CWPF 'designed, constructed or used' before then from any of the convention's obligations.[452] CW and CWPF designed, constructed or used between 1925 and 1946 are subject to an assessment by the Technical Secretariat and fall under less stringent declaration requirements. It is expected that much information is not be available on those CW and CWPF and that many have deteriorated and/or been destroyed since;[453] member states must only provide information on old CW 'to the extent possible'.[454]

The years 1977 and 1985 are the cut-off dates for land-buried and sea-dumped CW, respectively. The first date, 1977, marks the end of land disposals. It apparently corresponds to and is explained by 'a particular case of land disposal.'[455] The second date, 1985, agreed upon during private talks, has been called 'the most obscure element of the [sea-dumping] exemption' by commentators on the CWC.[456] CW disposed of before those dates are exempted from destruction obligations. As

[450] Verification Annex Part 4 (B) paras 15, 18.
[451] Chemical Weapons Convention, art IV para 11.
[452] Chemical Weapons Convention art II para 5.
[453] Gabriela Coman-Enescu, 'The Disposal of Abandoned Chemical Weapons and the Potential Impact of the CWC' (2001), OPCW Synthesis, 1.
[454] Krutzsch and Trapp, n 332, 53, 366 and Verification Annex Part 4 (B) para 3.
[455] Krutzsch and Trapp, n 332, 58.
[456] Ibid.

difficulties of disarmament will show, this exemption may be criticized. Many CW disposed were a threat as well as a significant disarmament task for states.[457] The most important cut-off date remains the entry into force of the Convention, which varies for non-original States Parties, and triggers time periods for declarations and submission of information.

The Convention uses many precise deadlines for compliance with its obligations. Declarations, verification, destruction and inspections are submitted to deadlines counted in days or years. Some deadlines are very short, for example 30 days for submitting the initial CW declaration following the entry into force of the CWC, or 60 days for the annual destruction plan to be submitted for each destruction period. It can be assumed that such short notices imply preparation by member states before the entry into force of the CWC.[458] However, it can be noted that the final deadline for CW and CWPF destruction, April 2007, binds all member states equally even though some acceded to the CWC after its entry into force.

There are intermediate deadlines that CW possessors must respect throughout their destruction program. For destruction purposes, CW are divided into three categories which correspond to the three Schedules used to classify CW and their components.[459] Therefore Category 1 corresponds to Schedule 1 chemicals, which is the crucial Category of CW from a disarmament perspective as it contains CW and the most dangerous toxic chemicals.

The destruction of Category 1 chemicals is bound by strict deadlines corresponding to four phases. [460] The first phase must start within two years of the CWC's entry into force; the second, third and fourth correspond to five, seven and 10 years after the entry into force of the CWC. At these landmarks, 1%, 20%, 45% and 100% of Category 1 CW must be destroyed, respectively. Therefore Phase 1 corresponds to two years after the entry into force of the CWC and by then CW possessors must have destroyed 1% of their Category 1 chemicals. The last phase corresponds to the entire destruction of Category 1 chemicals, according to the CWC's maximum 10-years final deadline.[461] The destruction schedule of Categories 2 and 3 chemicals are much looser as the chemicals are less hazardous. The destruction

[457] Chapter 3, Old and Abandoned Chemical Weapons.
[458] Goldblat, n 4, 109.
[459] Verification Annex, Part 4 (A) paras 16-17
[460] Ibid.
[461] Ibid.

must begin within a year of the CWC's entry into force, and is to finish five years after the entry into force. The respect or violation of these intermediate destruction deadlines (two, five, seven and 10 years) are a good marker to determine where CW possessors stand in their disarmament obligations.

Upon the conclusion of the CWC, however, Goldblat has criticized the CWC for being silent on the fact that states had freedom over the order of destruction, and that such an order of destruction 'does not take into account the qualitative aspects of chemical weapons.'[462] States also criticized this small weakness.[463] The author agrees with this criticism as the Convention therefore allows member states to disarm the less toxic chemicals first while Category 1 CW, the most pressing concern, are disarmed last.

The CWC deadlines can be extended at the request of member states in case exceptional circumstances keep them from complying with their obligations on time.[464] The conditions, requirements and process for extension are detailed in the Annexes corresponding to the CW and CWPF disarmament obligations. It is the author's belief that the possibility of extending disarmament deadlines can be directly attributed to the difficulties expected from CW destruction.[465] As the disarmament difficulties will show, most CW possessors have anticipated and now experience delays and difficulties in destroying CW.[466]

The definitions, cut-off dates and deadlines underline the distinction of the CWC from other arms control agreements. Other agreements, except the BWC, which imposes a nine-month disarmament period, do not impose any deadline for the achievement of disarmament. Similarly they do not provide detailed and extensive definitions of their terms.

3. The Use of Subjective Criteria in the Chemical Weapons Convention

A general comment can be made on the use of subjective criteria in the convention. Two such criteria are "purpose" and "intent", which are used in addition or instead of objective criteria (based on chemical characteristics such as toxicity or lethality) in order to define CWC terms.

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[462] Goldblat, n 4, 106.
[463] Ibid.
[464] Verification Annex Part 4 (A) paras 20-23 for intermediate deadlines, paras 24-28 for final deadlines.
[465] Goldblat, n 4, 108.
[466] Chapter 3, the difficulties of CW disarmament.

The criterion based on purpose is used with varying degrees for the definitions of precursors,[467] CW components (munitions, devices and equipment)[468] and CWPF.[469] It is expressed in the CWC's wording such as 'manufactured in order to' for precursors, 'designed, constructed or used for', for CWPF, and 'specifically designed', for munitions, devices and equipment. Similarly the definition of CW is founded on the 'general purpose criterion.'[470]

According to this criterion, material built for CW purposes corresponds to the 'activities/purposes prohibited under the convention' and is subject to declaration and destruction.[471] This subjective criterion defines CW according to the intent or the use that is made of toxic product which does not in itself answer the definition of a CW. The criterion classifies as CW any substance when is it intended or used as a means of chemical warfare; such substances subsequently fall under the scope of the convention's disarmament regime. For example, precursors manufactured to be part of a CW must be declared and destroyed. Yet 'the same chemical, produced for non-prohibited purposes, would not need to be declared nor destroyed.[472] Therefore components or facilities not meant for CW purposes are not considered as a CW or CWPF. The CWC commentators note that objective, technical characteristics such as toxicity no longer have relevance in the CWC.[473]

The purpose criterion serves as a limit to include or exempt chemicals from the convention's scope.[474] Application of the criterion also extends the scope of the CWC, and therefore the disarmament regime. The criterion allows for interpretation and modification of the CWC's definitions according to eventual developments and progress in chemical technologies, and serves verification purposes.[475] Chemicals which are harmless or unknown today shall fall under the definition of CW according to the 'purpose' criterion. Once they are produced or used for a CW purpose, they are subject to declaration and destruction obligation. The convention is therefore

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[467] Chemical Weapons Convention art II para 3.
[468] Ibid, para 1 (b) and (c).
[469] Ibid, para 8.
[470] Daniel Feakes, 'Challenges in the Implementation of Export Controls under the Chemical Weapons Convention, in Lisa Woollomes Tabassi and Rodrigo Yepes-Enriquez (eds), *Treaty Enforcement and International Cooperation in Criminal Matters: with Special Reference to the Chemical Weapons Convention* (2002), 331, 332 and Krutzsch and Trapp, n 332, 25.
[471] Chemical Weapons Convention art 6.
[472] Krutzsch and Trapp, n 332, 32.
[473] Ibid, 23.
[474] Cipolat, n 35, 409-10.
[475] Ibid, 403-4.

potentially adaptable to circumstances and future developments in the chemical field.[476] From a disarmament perspective it prolongs the life of the CWC well beyond the last destruction deadline.

The criterion based on 'intent' follows a similar logic. CWC member states are allowed a certain leeway with dangerous chemicals and the facilities producing them as long as they act with intentions not violating the Convention. This applies particularly to dangerous chemicals such as riot-control agents. They are similar to chemicals constituting CW, and their use is allowed as long as they are not intended to be used 'as means of chemical warfare.'[477]

The criterion based on intent also makes the CWC flexible and adaptable to circumstances. In addition it is a safeguard for the chemical industry which can conduct its activities within the limits set by this criterion. For example dual-use activities intended as 'activities not prohibited under the convention,'[478] comply with the CWC. This also determines which chemical activities fall under the scope of the CW disarmament regime, depending on their intent.

Finally activities authorized under the convention also fall under a quantitative threshold criterion of one ton per year,[479] which applies to dangerous chemicals normally prohibited. Once a member state can justify the production, possession and use of these unauthorized chemicals (i.e. for purposes not prohibited by Article 6), CWPF or other facilities are only allowed to produce, possess or use those chemical up to the one ton threshold every year.

The CWC uses subjective criteria for an extended scope and to avoid loopholes. The afore-mentioned responsibility criterion used to determine a state's responsibility over their CW and CWPF is similar. Altogether these criteria define the CWC's scope and set the boundaries of the CW disarmament regime by distinguishing what is allowed from what is prohibited.

[476] Wagner, n 228, 15.
[477] Chemical Weapons Convention arts I para 5 and II para 1 (a).
[478] Chemical Weapons Convention art VI.
[479] Verification Annex Part VI 'Activities Not Prohibited Under This Convention In Accordance With Article VI', para 1 and Mashhadi, n 347, 2.

4. Universality of the Chemical Weapons Convention

The CWC seeks to achieve universality; this key goal is stated in the convention itself and in numerous OPCW documents.[480] Concerning the CWC, the intent of universal adherence to the CWC is reaching a treaty which does not exclude any state from its benefits.[481] Universality in this context is therefore strictly limited to the adherence to the CWC.

Universality is justified from the chemical industry's perspective, as every state with such an industry under its jurisdiction or control has a potential CW capability.[482] There are also numerous other benefits from participation in the CWC, including assistance and protection against CW use,[483] trade, cooperation and development in the chemical field.[484]

From a security perspective, universal adherence to the CWC principally ensures no State will ever acquire and/or use CW, and remedies the CW threat. In that respect universality is based on the grounds that if all states are members of the CWC, the risk of seeing CW produced or used no longer exists.[485] CW disarmament directly improves the security of states.[486]

Finally it can be suggested that in light of the broad adherence to the CWC, it is difficult for a state to remain outside of it.[487] States may seek CWC membership if only to avoid suspicion about their CW capabilities and international isolation. Before the CWC entered into force, it was suggested by the US representative to the CD that a state remaining outside the CWC would be isolated.[488] Universality was therefore

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[480] *Report of the OPCW on the Implementation of the Chemical Weapons Convention in 2003*, ninth Session of the Conference of the States Parties; document C-9/5, 30 November 2004, 3; *Report of the Director-General*, document C-9/DG.4, 4 October 2004 and Lisa Tabassi, (International Symposium: Cooperation and Legal Assistance for the Effective Implementation of International Agreements, The Hague, 7-9 February 2001).
[481] Hassan Mashhadi, 'The Cost of the Chemical Weapons Convention for the Developing Countries' (1993) 16, *Disarmament*, 79 and Shah, n 69, 88.
[482] OPCW, *Universality of the Chemical Weapons Convention* <http://www.opcw.org/html/db/univers_r_frame.html > at 8 July 2005.
[483] Chemical Weapons Convention, art X 'Assistance and Protection Against Chemical Weapons'.
[484] OPCW, *Universality of the Chemical Weapons Convention* <http://www.opcw.org/html/db/univers_r_frame.html > at 8 July 2005.
[485] Ibid and Hyltenius, n 13, 12.
[486] Hyltenius, n 13, 12.
[487] OPCW, '*Instant Briefing'* (2005) <http://www.opcw/ib/html/results.html at 8 July 2005> as of 3 June 2005, there are 168 States Parties to the CWC.
[488] Ledogar, n 11, 52.

already sought before the CWC was opened for signature;[489] currently efforts are being made to ensure universal adherence to the treaty.

The CWC is an 'open' international treaty and all states are entitled to adhere or accede it. [490] Participation is sought and even encouraged; it is made easier with the principles of representation and balance between the CWC member states.[491] Furthermore, as a non-discriminatory treaty, all its member states have the same rights and obligations.[492]

Although universality of the CWC is a key goal, some aspects of this goal can, in the author's view, be criticized. As it is presented, it is suggested that universality of the CWC will result in its successful implementation. It appears that supporters of universal adherence to the CWC focus on participation in the convention and that universality is considered equal with and is assimilated with compliance. In the author's view such a shortcut is wrong and universality is not synonymous to a successful CWC, especially its disarmament goals. A comment can also be made on the fact that despite the importance of this goal, universality is not defined in the CWC.

Firstly supporters of universal adherence to the CWC seem to assume it would automatically lead to compliance. To a certain extent this is a logical assumption; acceding states and member states of the CWC agree to be bound by its provisions and abide by them. It is also an international legal obligation for states to abide by their obligations under international law.[493] However, the experience of the CWC has shown that adherence does not always result in successful implementation and compliance.[494] This may be due to external circumstances making compliance impossible,[495] or intentionally through deliberate breaches of obligations. Secondly, from a disarmament perspective, universality appears to be remote from the goal of CW disarmament, as there are only six countries directly concerned with the CWC disarmament regime.

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[489] Ibid, 42.
[490] Hyltenius, n 13, 2 and Errea, n 12, 24-26.
[491] Errea, n 12, 24, 25-9.
[492] Hassan Mashhadi, 'The Cost of the Chemical Weapons Convention for the Developing Countries' (1993) 16, *Disarmament*, 79.
[493] Vienna Convention on the Law of Treaties, opened for signature 23 may 1969, 1155 UNTS 331, art 26 (entered into force 27 January 1980).
[494] Lisa Tabassi, (International Symposium: cooperation and Legal Assistance for the Effective Implementation of International Agreements, The Hague, 7-9 February 2001).
[495] Dahinden, n 164, 272-3.

The first aspect of the criticism has important implications; universality may not be corroborated with compliance, which raises question about the enforcement of the CWC obligations. Universality without compliance can undermine the authority and strength of the treaty and affect confidence in it. It is the author's view that compliance is more important than adherence and this criticism raises the question of whether universality should not be less important than efforts towards better compliance.

This criticism also relates to the goal of CW disarmament. It is the author's belief that from a disarmament perspective, participation based on the quality of a state (CW possessor) and compliance are more relevant than greater participation in the convention. Participation based on the identity of states appears more adequate than efforts towards universal adherence. A criterion for participation could be member state's CW potential. Adherence to the CWC could be limited to states with former or existing CW capabilities and states with a significant chemical industry. Membership to the CWC should therefore be less intent on universality and more on compliance of a more limited number of states.

Concurring with this criticism is the growing awareness that universality is no substitute to compliance. It appears to the author that while universal adherence is still sought, current efforts also focus on compliance with the CWC. It is underlined that universality without compliance is 'a hollow accomplishment'.[496] Compliance, until recently assumed to happen with adherence to the CWC, is now underlined as a separate goal, to be achieved in parallel with universality.[497]

Difficulties in complying with the convention have to an extent separated compliance from universality. In other words, the treaty can be universal but will not necessarily be complied with. Universality, though it is presented as one of the main goals of the CWC, is not sufficient on its own; compliance is paramount to universality.

An analysis of two alternatives to universality; a system of two-step treaties and the provisional application of disarmament instruments will be made at the conclusion of this study.[498] Overall this debate raises questions about the necessity of

[496] Lisa Tabassi, (International Symposium: cooperation and Legal Assistance for the Effective Implementation of International Agreements, The Hague, 7-9 February 2001).
[497] Ibid.
[498] Chapter 5.

seeking universal adherence to the CWC and of applying similar provisions to all states parties.

5. The Principles of Non-Discrimination and Balance

A final comment can be made on the CWC non-discrimination and balance principles. Non-discrimination means that the convention binds equally all its States parties to the same legal obligations; no state or group of states is favoured or has more restrictions than another. It expresses the principle of balance between conflicting interests of various groups of states.[499] For example, economic interests differ between developed and developing States. Developing states are intent on respecting the sovereign equality of its members in terms of chemical development and refuse trade restrictions following adherence to the CWC.[500]

The non-discrimination principle is expressed in the representation in the OPCW Executive Council, which is based on equal geographical representation of all regions of the world and on the importance of the States' chemical industry.[501] According to the negotiators of the CWC, the Convention meets this objective of non-discrimination.[502]

From a disarmament perspective however, non-discrimination is only relevant among CW possessors, which are bound by the same disarmament obligations. However, as with universality, non-discrimination holds limited meaning since the situation of States in terms of CW capabilities is unequal and therefore discriminatory in the first place. CW possessors and non-possessors fall under very different obligations (declaration, systematic verification and disarmament for the former) and therefore a distinct treatment. Furthermore the situation among CW possessors is similarly different and the resulting disarmament effort varies dramatically. Out of 181 CW member states there are six known possessors. Among them Russia and the United States possess 98 percent of the global CW capability; the CW disarmament regime is necessarily discriminatory.

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[499] Ledogar, n 11, 42.
[500] Hassan Mashhadi, 'The Cost of the Chemical Weapons Convention for the Developing Countries' (1993) 16, *Disarmament*, 79.
[501] Chemical Weapons Convention art 8 para 23.
[502] Wagner, n 228, 15.

6. Conclusions On the Characteristics of the Chemical Weapons Convention

The CWC stands out from other arms control agreements in numerous respects, with its use of subjective criteria, definitions and its non-discrimination and balance principles. The CWC disarmament regime is altogether very complex. However, it can be commented that little is said by the treaty that relates directly to the CW destruction process, which includes a destruction plan, a method and the adequate resources. This appears as a deficiency since the CWC is primarily a disarmament treaty. The overall impression is that the treaty is mostly silent on the destruction process.

While this could give states leeway in disarmament matters, it can also be seen as a severe weakness in the CWC. One of the main difficulties CW possessors encounter in the destruction process is the development of a CW destruction plan and more specifically the choice of an adequate destruction method.[503] This concern was underlined at the very beginning of CW negotiations and shared among both experts and negotiators.[504]

Overall the CWC remains a very original and unique treaty, if only because it is the first real disarmament treaty banning an entire category of WMD.[505] As such it is a novelty among arms control and disarmament agreements. A number of authors have pointed out that the CWC was 'unprecedented', 'unique' and 'the first of its kind.'[506] The CWC is also original because it is the first verifiable arms control instrument,[507] with intrusive and extensive verification mechanisms which were never agreed on in other agreements, especially with the possibility of challenge inspections. These observations on the CWC only reinforce the contrast with other arms control agreements and especially the BWC, which has also been labelled the first disarmament treaty but remains weak in comparison.[508]

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[503] Chapter 3.
[504] SIPRI (ed) *Chemical Weapons: Destruction and Conversion* (1980) 2.
[505] Hyltenius, n 13, 1-2.
[506] Ibid, 2.
[507] Wagner, n 228, 16.
[508] Marie I. Chevrier, 'Strengthening the International Arms Control Regime', in Raymond A. Zilinskas (ed), '*Biological Warfare: Modern Offense and Defense'* (2000), 149, 150.

Section 2: Chemical Weapons Disarmament Imposed Upon States

Disarmament efforts are mainly the result of a voluntary commitment to conventions, politically or legally-binding instruments among consenting states. Another way to achieve CW disarmament is without the consent of the State or group of States which is to be disarmed. Imposed disarmament can result from peace treaties inflicting disarmament measures on other States, as sanctions following a war or as security measures to avoid another war. It can also result from sanctions imposed collectively by an international body, the United Nations Security Council (UNSC), on a State which has breached international peace and security.

A. Chemical Weapons Disarmament imposed by peace treaties

Disarmament measures can be imposed by peace treaties, often as sanctions following a war. For example, arms and/or troops limitations can be imposed on a State responsible for starting a war or a vanquished State. Types and quantities of armaments can be reduced and the acquisition of certain arms prohibited.[509] Peace treaties are another type of instrument that can be envisaged to ban CW. What differentiates them from other treaties, regardless of their multi- or bilateral form, is that they impose disarmament measures, as opposed to being undertaken freely.

There are a number of historical cases of disarmament measures imposed by peace treaties. The Paris Agreements on the Western European Union or Protocols to the 1948 Brussels Treaty embody such measures.[510] The third Protocol, on the Control of Armaments, includes the unilateral renunciation of CW by the Federal Republic of Germany among the prohibition on manufacture of certain weapons imposed by Members of the Western European Union. Annex II of the Protocol provides an extensive definition of the prohibited weapons and their production facilities similar to that used in the CWC.[511] A similar example of disarmament measures imposed as sanctions following a war is the CW disarmament of Japan. Following WWII US

[509] Goldblat, n 4, 13-15 and SIPRI, *The Problem of Chemical and Biological Warfare: CB Disarmament Negotiations, 1920-1970*, (1971) vol 4, 224-5.
[510] *Protocols to the 1948 Brussels Treaty,* signed in Paris on 23 October 1954, (entered into force on 6 May 1955); see also Goldblat, n 4, 20.
[511] Ibid, *Protocol III,* Annex II, arts II 'Chemical Weapons' and III 'Biological Weapons'.

occupational forces supervised the disarmament of the Japanese Imperial Forces' chemical warfare capability.[512]

International armed conflict now being outlawed by the UN Charter, theoretically this former method is no longer valid. Since armed conflicts can no longer take place under international law, sanctions following conflicts should not take place. However, as long as treaties imposing disarmament existed, they offered the advantage of being legally- and often politically-binding upon the vanquished state upon which they applied. Breaches of disarmament obligations would be easily identified and sanctioned.

B. Chemical Weapons Disarmament Imposed by the United Nations Security Council

CW disarmament can be imposed by the UN as part of its mandate to ensure and maintain international peace and security. Disarmament measures can be imposed by the UNSC against a State as sanctions to threats or breaches to international peace and security. The only such case so far is the forced disarmament of Iraq following its invasion of Kuwait in 1990. The UNSC called for the cessation of the conflict, the withdrawal of Iraqi forces and imposed a series of sanctions against Iraq.[513] When these requests were not complied with, military force was used on Iraq by an international coalition. From the military's perspective it was greatly feared CW would be used on troops.[514]

The imposed disarmament of Iraq took two forms. The first was the targeting of Iraq's chemical and biological capabilities by striking facilities known or suspected of concealing CW (and BW) activities, during Operation Desert Storm.[515] The success of the strikes on CW capabilities is controversial; they might not have been as effective as it was first thought.[516] The second was the disarmament by the UN

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[512] H Kurata, 'Lessons Learned from the Destruction of the Chemical Weapons of the Japanese Imperial Forces' in SIPRI (ed) *Chemical Weapons: Destruction and Conversion* (1980) 77-94 and Goldblat, n 4,, 20.
[513] UN Security Council Resolutions 661 of 6 August 1990, 678 of 29 November 1990, 686 of 2 March 1991, 687 of 3 April 1991, 688 of 5 April 1991, 707 of 15 August 1991, 715 of 11 October 1991 986 of 14 April 1995, 1284 of 17 December 1999.
[514] Graham S Pearson, 'The essentials of Biological Threat Assessment' in Raymond A Zilinskas (ed), *Biological Warfare: Modern Offense and Defense* (2000), 55, 72.
[515] Gee, n 29, 78; Pearson, n 511, 72-3; Tim Trevan, 'Exploiting Intelligence in International Organizations' in Raymond A Zilinskas (ed), *Biological Warfare: Modern Offense and Defense* (2000), 193, 194-5.
[516] Trevan, n 512, 195-6; Colwell and Zilinskas, n 309, 225. Contra, see Gee, n 29, 79.

Special Commission (UNSCOM), mandated by UNSC Resolution 687.[517] Its mandate was to remove, dismantle and destroy Iraq's CW capabilities (as well as its ballistic missile capability), which was fulfilled.[518]

UNSCOM inspectors were forced to withdraw from Iraq in December 1998. In 1999, following UNSC Resolution 1284, the United Nations Monitoring, Verification and Inspection Commission (UNMOVIC) replaced UNSCOM to pursue the disarmament mandate under Resolution 687.[519] Resolution 1441 reaffirmed Iraq's obligations to comply with UNSC resolutions, and reintroduced inspectors in Iraq.[520] In spite of a reinforced mandate, the lack of cooperation from Iraq, together with heavy international pressure did not allow UNMOVIC to fulfil its mandate.[521] UNMOVIC did not discover the expected CW.[522]

It is difficult to draw conclusions from UNMOVIC and UNSCOM in terms of failure or success. Both missions were plagued with countless obstacles; from Iraq but also from the States which gave their most support to the UNSC resolutions.[523] Questions remain about Iraq's CW capabilities, as only UNSCOM found and dismantled Iraq's CW. Most issues about Iraq are highly political, especially the recent developments with UNMOVIC and the resulting military conflict in 2003. Yet there are numerous lessons and difficulties to learn from the disarmament of Iraq.

It can be noted that UNSCOM's dismantling of Iraqi CW capabilities is the first multilateral, cooperative CW disarmament effort, as the CWC was not in force then. Such an experience, compared to conventional disarmament, underlines the potential of imposed disarmament.

The imposed CW disarmament of Iraq by UNSCOM is significant for the current CW disarmament regime. The disarmament operation itself is useful in terms of practical destruction experience. More specifically the UNSCOM experience with CW disarmament uncovered difficulties which can be expected of CW disarmament, whether conventional or imposed.

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[517] UN Security Council Resolution 687 (1991), UN document S/RES/687, 3 April 1991.
[518] Stephen Black, 'Investigating Iraq's Biological Weapons Program' in Joshua Lederberg (ed), '*Biological Weapons: Limiting the Threat'* (1999), 159-164.
[519] UN Security Council Resolution 1284 (1999), UN Doc S/RES/1284, 4048th mtg, 1999; Trevor Findlay, 'The UN Monitoring, Verification And Inspection Commission' (2005) 35 (7), *Arms Control Today*, 45.
[520] UN Security Council Resolution 1441 (2002), S/RES/1441.
[521] SIPRI *Yearbook of World Armaments and Disarmament* 2003, 666-672.
[522] Lois Ember, 'Hunt Ends to Iraq's Weapons' (2005) 83 (18) *Chemical and Engineering News'*, 8.
[523] Trevan, n 512, 207, 212-224.

The UNSCOM experience highlighted the technical difficulties of CW destruction operations. A safe and affordable destruction method, but also CW transportation and waste treatment were the main issues of Iraq's CW disarmament.[524] On the one hand it turned out Iraq already had a good experience with CW destruction. On the other the destruction task was both significant and technically complex due to leaking munitions and technical, safety-related incidents among other things.[525] The difficulties of CW disarmament under the CWC have largely confirmed this difficulty.

Another key difficulty was the absence of cooperation from the Iraqi government regarding its weapons capabilities. The disclosure of information was far from satisfactory. It was incomplete, obtained with great difficulty, and often did not reflect the truth.[526] Compared to other capabilities information on CW and on missiles was more easily granted or available,[527] easing UNSCOM inspections, destruction, and verification activities.[528] The lack of cooperation was underlined as an unavoidable downside of imposed disarmament, as opposed to disarmament willingly consented to. It also reflected the need for cooperation and CBM in disarmament.

The human factor also played an important part in disarmament. Scientists shared responsibility in the disclosure of information and in the cooperation for destruction with UNSCOM.[529] Ensuring the security of scientists, but also promoting exchanges and integration in the international scientific community were another necessary aspect of the success of imposed disarmament.[530] However, it can be noted that although they contributed to disarmament, scientists also shared the responsibility for the development of CW.[531]

Finally the international support displayed for UNSCOM's task turned out to be an essential element for the success of CW disarmament.[532] The fact that USNCOM was multi-disciplinary has also been underlined as an improvement to

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[524] Gee, n 29, 82-3.
[525] Ibid, 84-6.
[526] Kaldec, Zelicoff and Vrtis, n 310, 24; Pearson, n 511, 73-4; Raymond A Zilinskas, 'Iraq's Biological Warfare Program: the Past as Future', in Joshua Lederberg (ed) 'Biological Weapons: Limiting the Threat' (1999),137, 143; Stephen Black, 'Investigating Iraq's Biological Weapons Program', in Joshua Lederberg (ed) 'Biological Weapons: Limiting the Threat' (1999), 159,160.
[527] Gee, n 29, 80.
[528] Zilinskas, n 523, 153.
[529] Kaldec, Zelicoff and Vrtis, n 310, 24.
[530] Zilinskas, n 523, 155,157.
[531] Colwell and Zilinskas, n 309, 226-236
[532] Zilinskas, n 523, 155.

learn from.[533] This has raised the question of an international multi-disciplinary structure for disarmament, such as an international disarmament agency.[534]

In retrospect there are many differences between a structure such as UNSCOM and a disarmament treaty, even though they seek a common goal- peace and security through the removal of weapons. Imposed disarmament implies coercion, and requires sufficient leverage to persuade a State to accept being disarmed. It also implies a shift in responsibility from the disarmed state to an international body. The latter becomes accountable for the disarmament results and necessarily operates under much pressure.

Despite these drawbacks, in the author's view imposed disarmament has great potential as an alternative method of disarmament, as the UNSCOM experience has shown. It could deal effectively with cases of non-compliance with or failure to meet international legal obligations.[535] This is not without difficulties as it requires that a violation of conventional obligations constitute a threat or breach of international peace and security. However, once such threat or breach is qualified, it justifies the release of considerable means to re-establish peace and security. The use of force is the most visible, but an international inspection team with a disarmament mandate can also be envisaged. Therefore if a State is a danger to international peace and security because it seeks or possesses weapons, imposing the removal of weapons is a possibility. Although this suggestion is overly simplistic, a mandate for imposed disarmament holds considerable long-term interest.[536] Authors have expressed interest in preserving such capacities and experience, and in using the UNSCOM model in the future.[537]

The concept of disarmament imposed by the UNSC calls for caution as it raises questions about the role and involvement of the UNSC in the CWC. A risk of abuse remains in the recourse to the UNSC in case of violation of the CWC. A breach of the prohibition to use CW can result in a complaint to the UNSC which can eventually adopt sanctions.[538] The UNSC can subsequently adopt disarmament

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[533] Ibid, 156-7.
[534] Chapter 5
[535] Trevor Findlay, 'The UN Monitoring, Verification And Inspection Commission' (2005) 35 (7), *Arms Control Today*, 48.
[536] SIPRI, *Non-Proliferation, Arms Control, Disarmament, Yearbook 2004*, 619-921.
[537] Ibid; Trevor Findlay, 'The UN Monitoring, Verification And Inspection Commission' (2005) 35 (7), *Arms Control Today*, 48.
[538] Chemical Weapons Convention art 12, 'Measures to Redress a Situation and to Ensure Compliance, Including Sanctions', para 4.

measures as part of its mandate to re-establish peace and security and prevent the use of force. However, it is uncertain whether the possession or the failure to disarm CW constitutes a breach of international peace and security. If such was the case, the UNSC would be allowed to act and impose disarmament in a number of situations.[539] In the case of Iraq, possession, refusal to disarm and the invasion of Kuwait justified measures by the UNSC involving the use of force. This raises the highly controversial question of whether the possession of CW sole and the refusal to disarm be sufficient to justify similar measures. The worst application of this interpretation would lead to actions taken under the UNSC mandate for minor CWC violations. Again this raises the question of whether seeking or possessing CW constitutes a threat or breach of international peace and security. Another side of this question is whether, and if so, how the violation of a disarmament treaty justifies measures of imposed disarmament.

A strong international reaction can be expected in case CW are used, although the same reaction in case a state violates its CW disarmament obligations appears very uncertain. Some authors appear to extend violations of the prohibition of the use of CW to other CWC violations, resulting in similar reactions.[540] For example the acquisition of CW would be considered a 'breach of the international peace.'[541] In the author's opinion such a step is unlikely, even though both the use, acquisition of CW and failure to complete CW disarmament are equally violations of CWC obligations. This matter relates to what constitutes a threat to or breach of international peace and security. Whether all violations of the CWC constitute such threat or breach is a debate beyond the scope of this paper.

More generally there are limits to enforcing CWC obligations. The UNSC can be blocked by the veto of a permanent member. The OPCW has only limited means to deal with violations of the CWC. Although the CWC contributes to maintaining international peace and security, it does not have the mechanism to maintain or enforce it directly. Imposed disarmament raises questions about what powers disarmament treaties should provide for and whether they should provide the means to be enforced.

[539] Krutzsch and Trapp, n 332.
[540] Krutzsch and Trapp, n 332, 219.
[541] Ibid.

Section 3: The Current Situation of Chemical Weapons Disarmament Instruments

Following the presentation of the current legal obligations which constitute the CW disarmament regime, a brief overview of the current state of the CW disarmament regime is provided. Firstly, the international institutions involved in the CW disarmament effort are presented. Secondly, the current situation of the OPCW is examined, focusing on particularly the recent crisis it came across.

A. International institutions related to Chemical Weapons disarmament

The OPCW relates to various other international institutions which also contribute to CW disarmament, and especially the UN. The UN pursues disarmament to a certain extent with its goal of "General and Complete Disarmament".[542] Mainly the UN seeks to ensure international peace and security and for that purpose supports the removal of all means of warfare. CW disarmament therefore contributes to the goals sought by the UN and in that regard the OPCW works hand in hand with the UN.

The relationship between CW disarmament instruments and the UN is two-way. On the one hand the UN helps and supports international arms control and disarmament agreements, mostly with resolutions affirming the authority and importance of such instruments.[543] On the other hand, disarmament instruments contribute to the UN goals.

The relationship between CW disarmament and the UN goals has been expressed in various ways. The preamble of the CWC reaffirms its contribution to the 'realization of the purposes and principles' of the UN.[544] It also affirms the determination to 'act with a view to achieving effective progress towards general and complete disarmament under strict and effective international control.'[545] The CWC

[542] See UNGA resolution 1378 'General and Complete Disarmament' UN document A/RES/1378.
[543] UNGA resolutions 'Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction' 59/110 (2004), 58/72 (2003), 57/516 (2001), 55/40 (2000), 54/61 (1999), 52/47 (1997), 2826, 46/35A (1991), 48/65 (1993), 49/86 (1994), see also UNGA resolution 'Status of the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction', 53/84 (1998). On the CWC, UNGA resolutions 'Implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction' 59/72 (2004), 58/52 (2003), 57/82 (2002), 56/24 K (2001), 55/33 H (2000), 54/54 E (1999), 53/77R (1998), see also resolution 'Status of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction' 52/38T (1998).
[544] Chemical Weapons Convention preamble, para 2.
[545] Ibid, para 1.

has been identified as a core treaty for the achievement of the UN mission.[546] The relationship between the UN and the OPCW is embodied in the 2001 Relationship Agreement, which institutionalizes the relationship of cooperation and assistance between the UN and the OPCW.[547] Finally at the occasion of the CWC First Review Conference the OPCW strongly reaffirmed the CWC contribution to the UN purposes.[548]

However, the role of the UN in CW disarmament must not be over-estimated. Although the CW disarmament regime is associated with the objectives, principles and purposes of the UN, CW disarmament remains a narrow and specific area of the international law of arms control. The matter of CW disarmament is the mandate of the OPCW only. In the author's view in spite of the UN's considerable resources, it has a widespread mandate and is not focused on disarmament. It can be suggested that effective disarmament calls for a lighter and preferably independent structure but nonetheless with sufficient technical and financial means.

Other institutions contribute, to a limited extent, to the disarmament of CW. The main institutions are the World Health Organization and the multitude of national peace research institutes and arms control agencies. Other multilateral and bilateral agreements also contribute to CW disarmament. Yet the OPCW remains the main institution for CW disarmament and the only one likely to achieve concrete results.

B. The Organization for the Prohibition of Chemical Weapons Internal crisis

The CWC and its international organization are the main components of the current CW disarmament regime. However, they have met obstacles. The OPCW has suffered a major internal crisis in 2001, which is an example of such obstacles. Although this crisis is not directly related to the CW disarmament regime, it has affected the running of the OPCW.

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[546] OPCW, *Universality of the Chemical Weapons Convention,* <http://www.opcw/html/db/univers_r_frame.html> at 8 July 2005.

[547] Agreement Concerning the Relationship between the United Nations and the Organization for the Prohibition of Chemical Weapons, signed on 17 October 2000; OPCW decision C-VI/DEC.5, 17 May 2001; see also UN resolution A/RES/55/283 (2001). See also OPCW 'Relationship Agreements', <http://www.opcw.org/html/db/legal/rel_agree.html> at 8 July 2005.

[548] *Report of the First Special Session of the Conference of the States Parties to the Review the Operation of the Chemical Weapons Convention* ('First Review Conference'), 28 April-9 May 2003, OPCW document RC-1/5 (9 May 2003), 4, 24; OPCW Annual Report 2003, C-9/5 (2004), 1.

This unexpected crisis started with the open criticism of the OPCW Director-General's running of the Organization by the United States, namely his decision-making and his allocation and spending of funds.[549] The criticism came mostly from the US, a brusque reversal from earlier praise of the Director General's work, which had been corroborated with the unanimous re-election of the DG for a second term.[550] The US and a few other States attempted to push the DG to resignation during the 28th session of the Executive Council with a no-confidence motion.[551] Although this failed, a Special Session of Conference of the States Parties was convened in 2002 and resulted in the removal of the Director-General and the nomination of another instead.[552]

The 2001 crisis illustrates the vulnerability of arms control agreements to circumstances and to political pressures. Such a crisis also has serious political considerations and implications for the international law of arms control.[553] From a disarmament perspective the crisis has both affected the CWC's authority and strength and affected the financing and functioning of its disarmament tasks. The crisis was mainly financial: the OPCW financial organization, its allocation of funding and planning and its deficit were questioned.[554]

The financial aspects of the 2001 crisis raise a central question about the importance of the CW disarmament regime among the OPCW verification activities. In particular, the budget and funding of inspections activities has turned out to be a sensitive topic.

On the one hand, the verified and timely destruction of CW is a priority, but on the other it does not have the same relevance for all States Parties. As a consequence it is considered that it should not benefit from all the resources.[555] This position appears well founded as a majority of states is not concerned with activities related to CW disarmament, and the OPCW has only a limited budget for a wide

[549] Ana Stanic, 'Bustani v. Organization for the Prohibition of Chemical Weapons' (2004) 98, *American Journal of International Law,* 810-814.
[550] Ibid.
[551] *SIPRI Yearbook 2003,* 651.
[552] Ibid.
[553] Ibid, 651-2 and Ana Stanic, 'Bustani v. Organization for the Prohibition of Chemical Weapons' (2004) 98, *American Journal of International Law,* 810-814.
[554] General Accounting Office Report, 'Organization for the Prohibition of Chemical Weapons Needs Comprehensive Plan de Correct Budgeting Weaknesses', GAO-03-5, October 2002.
[555] *SIPRI Yearbook 2003,* 653.

scope of activities, supplemented with an increasing amount of work.[556] The 2003 OPCW annual report has underlined the fact that verification activities takes up 'a substantial portion of the resources', and verification concerns mostly CW destruction facilities.[557] An initiative has been launched to optimize verification activities at those facilities.[558]

In turn it raises the question of whether the CWC is primarily a disarmament treaty, or a non-proliferation, cooperation, assistance or trade organization treaty. There is clearly a contradiction between the disarmament purpose of the treaty and the fact that only a very limited number of member states are concerned with disarmament efforts. This throws doubt yet again on the validity of global participation and adherence to the CWC. Different priorities affect perceptions on how the funds should be allocated, where and for whom they are most needed. A convention with a universal ambition and broad membership such as the CWC necessarily opposes conflicting interests among its participants. Regardless of these considerations, the focus on financial issues in the OPCW is the symptom, common in international organizations, of lack and uncertainty of financial contributions.

Concerning the authority of the CWC in terms of disarmament, the OPCW internal crisis seemed to have had only an indirect effect. Disarmament problems are largely national problems, international inspections are without a doubt a necessity for a successful verification system, but they are not the States' responsibility. The financial problems of the OPCW led to a reduced number of inspections compared to what was planned,[559] but is it in fact a common occurrence.[560]

The OPCW was mostly affected in terms of credibility concerning its internal functioning and independence from political pressure and financial blackmail. In that regard, a positive reversal occurred, with the International Labour Organization (ILO) Administrative Tribunal decision *Bustani v. OPCW*. The removal of the Director

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[556] General Accounting Office Reports, '*Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation*', GAO-04-361, March 2004; '*Organization for the Prohibition of Chemical Weapons Needs Comprehensive Plan de Correct Budgeting Weaknesses*', GAO-03-5, October 2002, OPCW *Annual Report 2003*, C-9/5 (2004), 7.
[557] OPCW *Annual Report 2003*, C-9/5 (2004), 8.
[558] Ibid.
[559] Ibid, 7; General Accounting Office Report, '*Organization for the Prohibition of Chemical Weapons Needs Comprehensive Plan de Correct Budgeting Weaknesses'*, GAO-03-5, October 2002.
[560] OPCW Annual Report 2002.

General was considered a breach of the terms of his employment contract.[561] More importantly, the Tribunal reaffirmed the importance of the political independence of international civil servant and condemned the political interference by States. The decision is also the first one involving the removal of the head of an international Organization.[562]

Conclusion: Chemical Weapons Today: the Practical Results of Disarmament Instruments

This study concludes with an overview of the results of the CW disarmament regime. Evaluation of the CW disarmament regime is mostly based on information provided by the OPCW annual reports, which provide the official information on the activities of the Organization and on the implementation of the CWC. Under the section 'chemical demilitarization' of annual OPCW reports, the destruction of CW, old and abandoned CW but also all related facilities, is reported. Other OPCW documents regularly update or complete the annual reports.

As of July 2006, out of 65 declared CWPF, 55 had been 'certified as destroyed or converted for peaceful purposes.'[563] Concerning CW, over 19 percent of the global CW stockpile had been verifiably destroyed.[564]

In 2004, the main CW possessors, Russia and the USA, had destroyed over 1% and 24% of their Category 1 CW stockpiles, respectively, thereby meeting the CWC destruction deadlines.[565] India had destroyed more than 45% of its 'declared Category 1 CW' and its entire Category 2 CW, therefore meeting its obligations ahead of its intermediate deadlines.[566] The unnamed State Party had destroyed 35% of its declared Category 1 stockpiles. Albania, had not started destruction at the time of the report,[567] nor had Libya.

Generally, although the annual reports put a positive face on the results of CW disarmament, there are clearly difficulties in disarming CW. In spite of the progress on the destruction of CW noted in the annual reports, destruction deadlines had to be

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[561] Ana Stanic, 'Bustani v. Organization for the Prohibition of Chemical Weapons' (2004) 98, *American Journal of International Law,* 810-814.
[562] Ibid.
[563] OPCW, 'The Chemical Weapons Ban: Facts and Figures' (2006) <http://www.opcw.org/factsandfigures/index.html> at 3 August 2006.
[564] Conference of the States Parties, '*Report of the OPCW on the Implementation of the Chemical Weapons Convention in 2003'*, OPCW document C-9/5, ninth session (30 November 2004), 5-6.
[565] Ibid, 6.
[566] Ibid, 5.
[567] Ibid, 6.

extended. In 2003 three requests were approved for the extension of deadlines for the destruction of Category 1 CW. Russia's and the USA's final and intermediate deadlines were extended.[568] The unnamed member state's intermediate deadlines were also extended, therefore postponing the final deadline.

Concerning the OPCW verification activities and especially inspection activities, the 2003 report concluded that the Organization had met its goals and achieved an extensive inspection schedule which roughly corresponded to the planned and budgeted schedule. In 2003 there was a difference between the inspections planned (and budgeted) and those which were conducted, marking reduced verification activities. The difference was explained by the 'decrease in the number of operating CW destruction facilities over what States had predicted.'[569] In 2003, nine CW destruction facilities operated, four of them continuously.

Although annual reports point out difficulties of implementation of the CWC, to the author that it offers an optimistic view of the CWC implementation. Some information on CW disarmament must be considered carefully or re-considered in light of other sources of information on CW disarmament. For example, the causes for the reduced verification activities are overlooked. If fewer inspections were needed, it suggests that disarmament activities were insufficient, hence the reduced number of inspections. The report failed to explain why some destruction facilities did not operate and only mentioned 'past delays in destruction activities.'[570] Finally the 'cash shortfalls' which impeded the OPCW functioning and affected its inspection activities are not elaborated.[571]

There are other sources of information on CW disarmament based on the national chemical demilitarization programs of CW possessors. For example, the US General Accounting Office provides a rather grim evaluation of the chemdemil program and concludes that two intermediate and the final 2012 destruction deadlines cannot be met if destruction proceeds at this pace.[572] This conclusion reflects the general trend that CW disarmament is becoming harder, not easier to achieve.

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[568] Ibid, 5-6.
[569] Ibid, 7.
[570] Ibid.
[571] Ibid, 8.
[572] General Accounting Office Report, '*Chemical Weapons: better Management Tools Needed to Guide DOD's Stockpile Destruction Program'*, GAO-04-221T, October 2003, 2, 7-8; General Accounting Office Report, '*Chemical Weapons: Destruction Schedule Delays and Cost Growth Continue to Challenge Program Management'*, GAO-04-634T, April 2004, 2, 6.

Although progress in CW disarmament cannot be denied, difficulties mentioned in the report (financial, frequently unmet deadlines, slowing down of destruction operation, declaration of enormous amounts of CW) suggest that CW disarmament does not meet the expectations expressed at the entry into force of the CWC. It is worth noting, however, that reforms are under way, especially concerning verification of CW destruction.[573]

Current CW disarmament activities are largely the result of the CWC. The legal regime on CW disarmament is a recent creation and a novelty in the field of arms control. The current CW disarmament regime therefore has a conventional origin and except for earlier peace treaties, imposed disarmament remains exceptional. Conventional and imposed disarmament both work well to a certain extent. It seems inappropriate to favour one over another, as they correspond to different situations; the respective advantages of each should be considered on a case-by-case basis. To the current day, however, the study of the disarmament of CW corresponds to the study of the CWC's successes and failures. Such a study automatically results in a general appreciation of the CWC and call for a critical examination of the causes for the difficulties hindering the disarmament of CW and the implementation of the CW disarmament regime.

[573] *Report of the First Review Conference of the CWC*, OPCW document RC-1/5 (2003), 5.

Chapter 3: The Difficulties of Chemical Weapons Disarmament.

Introduction

This chapter addresses the difficulties related to the implementation of the CW disarmament regime. Once the CW disarmament regime has been detailed and the disarmament task expected of CW possessors identified, the implementation of the disarmament regime will be examined. The implementation of the CW disarmament regime points out the practical difficulties of CW destruction, in accordance with the effective and result-based study of the CW disarmament regime. It also determines whether CW disarmament is successful or if it fails.

In that respect the aim of this chapter is to highlight the gap between the CW disarmament regime of the CWC, the theoretical aspect of disarmament, and its practical results in terms of CW destruction. Many of the difficulties encountered in implementation have been overlooked or unanticipated in the drawing up of the CWC. There is clearly a lack of norms in disarmament matters to deal with all the situations encountered and the OPCW offers poor guidance on how to apply existing norms.

This assessment of the results and difficulties of CW disarmament takes place at a crucial time, during the CWC's ninth year of existence. Disarmament operations are well under way since the entry into force of the CWC in 1997 and are supposed to be completed by April 2007. Unfortunately up to the present day only 15% of the CW disarmament task is completed.[574] Existing difficulties clearly hinder the disarmament of CW.

The author adopts a very 'hands-on' approach these difficulties, since they are mostly of technical nature. This approach is justified by the fact that commentary on CW disarmament or on the implementation of the CWC often overlooks the practical aspects and difficulties of CW destruction. Information on CW disarmament mostly comes from scientific and military sources; as a consequence it has a strong technical

[574] Conference of the States Parties, '*Report of the OPCW on the Implementation of the Chemical Weapons Convention in 2004*', tenth session, 7-11 November 2005, OPCW document C-10/4 (2005).

connotation but is sometimes incomplete. A general overview of the difficulties of CW disarmament is provided, illustrated with specific case studies.

Two types of difficulties plague the disarmament of CW. The first type, examined in the first section, it corresponds to technical issues hindering the CW disarmament process and which mainly affect the two largest CW possessors. These difficulties are finding a satisfactory destruction method and meeting the CWC conditions of CW destruction. The second type, examined in the second section, relates to the feasibility of CW disarmament in light of the delays and financial problems. These difficulties are linked with the previous technical difficulties of CW destruction.

Section 1: The Technical Difficulties of Chemical Weapons Disarmament

The first difficulty of CW disarmament is finding and adopting a CW destruction method that achieves the purposes of CW disarmament while meeting the requirements imposed by the CWC. Finding and adopting a CW destruction method is both technically and politically difficult; it is a hopeless compromise between conflicting interests.

A. The Purpose and Scope of Chemical Weapons Destruction Methods

The first difficulty encountered by CW possessors is finding a suitable destruction method to destroy CW and CWPF. The Convention obliges them to provide destruction methods for their CW and CW facilities.[575] The method must be mentioned in the destruction plans[576] and in declarations of destruction activities (annual and final declarations).[577]

Finding a destruction method is crucial; the implementation of the CW disarmament obligation depends on the existence of a suitable method. It is necessary to eliminate CW and fulfil the goal of CW disarmament. As a result the CWC is implemented and complied with, and the CW threat removed. Therefore the matter of CW destruction methods is a key aspect of the disarmament of CW that cannot be overlooked. Nevertheless, methods must meet certain requirements to serve their purposes.

[575] Verification Annex Part I.
[576] Verification Annex Part IV (A) para 6, Part V para 34.
[577] Verification Annex Part IV (A) paras 29-36, Part V paras 8-10.

Firstly a destruction method must be comprehensive to encompass all CW capabilities. Either a single suitable method must be found for an entire CW stockpile, or a method must be found for each type of CW. Accordingly with the scope and intended results of the disarmament of CW,[578] the method must extend to CW agents, but also to munitions and CW facilities.[579]

Secondly a destruction method must be final and irreversible; it aims to destroy or transform CW into harmless, non-toxic products which cannot be used for warfare.[580] Before the CWC was concluded a disarmament expert explained that

> The goal of destruction of CW agents is to make these compounds unusable for military purposes and to reduce their high toxicity so that they are no longer a hazard to man and to the environment.[581]

A similar definition has been adopted in the CWC; the destruction of chemicals must be done 'in an essentially irreversible way' and result in a product 'unsuitable for production' as well as unusable as a CW.[582] The corollary of an irreversible destruction method is that it cannot be reversed to make other CW.[583] Furthermore it implies that in case conversion is preferred over destruction, the conversion of destruction by-products must also be irreversible.

These requirements create difficulties as existing destruction methods are often a two-step process. The completion of the first step results in dangerous by-products.[584] It does not correspond to the destruction of CW since it does not convert them into harmless products. A second step is therefore necessary to complete the destruction of CW.[585] It can be noted yet again that there is a disagreement about the interpretation and extent of the definition of destruction.[586]

Finally, CW disarmament is intended to be definitive, which distinguishes it from the replacement of old CW with new CW or the renewal of CW stockpiles with modern CW. Replacement implies disarmament measures but its purpose is not the

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[578] Chapter 1, the Implications of the Disarmament of CW.
[579] Vojvodic and Binenfeld, n 195, 96.
[580] Verification Annex, Part IV (A) para 12
[581] Lohs, n 189, 68.
[582] Verification Annex IV (a) para 12.
[583] Ibid.
[584] Vojvodic and Binenfeld, n 195, 95, 96.
[585] General Accounting Office Report, '*Chemical Weapons: Destruction Schedule Delays and Cost Growth Continue to Challenge Program Management'*, GAO-04-634T, April 2004, 5.
[586] Chapter 4.

disarmament of CW. It can be concluded from these requirements that a destruction method ensures that CW possessors no longer have CW or the means to produce them.

CW destruction methods must meet various obligations and verification requirements which are detailed in the CWC and Verification Annex;[587] these are looked into later in this study. However, in spite of this states remain free to determine how they destroy CW and CWPF;[588] guidance on CW destruction methods appears, in the author's view, very poor. The few requirements imposed by the Convention only set boundaries on what CW possessors may do.

Before the current CW destruction methods are looked into, previous experiences of CW destruction using early methods are examined. Early destruction methods are a useful background to the current difficulties with CW destruction methods.

B. Early Chemical Weapons Destruction Methods

CW disarmament activities took place before the CWC was concluded. They were mostly voluntary initiatives from CW possessors to get rid of their own or other states' weapons. The destruction methods used then were very different from the destruction methods envisaged under the CWC and used today.

1. Types and Uses of Early Destruction Methods.

The destruction of CW and CWPF was a national effort before it was an international obligation.[589] In the past CW possessors often destroyed part of their own CW stockpiles become useless, especially old, unusable, leaking or out-of-date munitions. Most obsolete agents and munitions dating back to World War I were destroyed that way.[590] Similarly states also disposed of old CW to renew or replace CW stocks with newer CW; for example with the more efficient nerve agents, and later with binary munitions.[591]

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[587] Verification Annex Parts IV (A) and V, paras 37-70 on verification of CW, paras 43-86 for CWPF.
[588] Verification Annex Part IV (A) and V, paras 13 and 11, respectively.
[589] Georgi S Leonov and Vladislav V. Sheluchenko, 'Principle Technological and Environmental Aspects of the Destruction of Chemical Weapons' (1992), 15, *Disarmament*, 94.
[590] Ooms, n 44, 125.
[591] Ibid, Ooms, n 44, 125 and General Accounting Office Report, '*Chemical Demilitarization: Funding Status of the Chemical Demilitarization Program*', GAO/NSIAD-99-232R, July 1999, 1.

In the context of disarmament imposed by peace treaties and especially following World War II, the CW of vanquished States were also destroyed.[592] This type of disarmament was mostly conducted directly by occupational forces which would undertake the disarmament operations themselves, or under their authority and supervision.[593]

There is therefore a considerable experience of CW disarmament, a few cases of CWPF dismantling and destruction, and some cases of conversion.[594] Unfortunately early experiences of CW disarmament hardly contribute to finding an appropriate CW destruction method. Because of the legacy of defectively destroyed CW they are counter-productive and set a bad example.

Early CW destruction methods were sea, lake or river-dumping, land burial, open pit burning or burning at sea.[595] Sea-dumping and land burial were the most common and simplest methods and were extensively used. Incineration methods and especially open-pit burning and burning at sea were also often used, in particular for mustard gas.[596] These methods were then accepted as safe and reliable.[597]

2. The Drawbacks and Consequences of Early Chemical Weapons Destruction Methods

Early CW destruction methods were rudimentary and unsatisfactory in many respects. They had numerous drawbacks and negative results; today they are unacceptable under the CWC disarmament regime.

For the most part, early methods ignored both environmental and human safety preoccupations. Disarmament operations were conducted carelessly. For example, the safety of the workers was not well ensured and the impact of CW disposal on nearby populations and on the environment damages was overlooked.[598]

Early CW disarmament efforts were unsatisfactory and hazardous both at the time of disarmament operations and well after CW disposal operations took place.

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[592] Chapter 2 'Imposed disarmament'.
[593] Ad Hoc Working Group on Chemical Munitions (CHEMU), *Report on Chemical Munitions Dumped in the Baltic Sea*, January 1994 to the 15th meeting of the Helsinki Commission (HELCOM), 8, 12-3; Kurata, n 508, 22-23.
[594] Mikulak, n 155, 57-66.
[595] *SIPRI Yearbook 1991*, 100.
[596] *SIPRI Yearbook 1979*, 478, 480 and Ad Hoc Working Group on Chemical Munitions (CHEMU), *Report on Chemical Munitions Dumped in the Baltic Sea*, January 1994 to the 15th meeting of the Helsinki Commission (HELCOM), 8.
[597] Kurata, n 508, 82; Ooms, note 44, 125.
[598] Ibid.

The drawbacks of these disarmament efforts mostly became apparent soon after disarmament operations. Today these defectively disarmed CW are not a threat in terms of chemical warfare but they are a contemporary issue as they continue to create a human and environmental hazard.

Sea-dumped CW are sometimes found by fishermen. The Japanese, American and Australian experiences with sea-dumping have resulted in accidental recoveries of old munitions by fishing boats,[599] and numerous accidents,[600] decades after the sea-dumping operations. Similar cases with CW dumped in the North and Baltic Seas occurred.[601] Sea-dumped CW are also a concern in terms of marine pollution.[602]

The Japanese experience of CW dumping at sea illustrates well the downsides of this method.[603] American occupational forces supervised the disposal of Japanese CW, a few miles off the coast of Japan. Unfortunately in parallel to US operations, similar operations were being carried out covertly by the Japanese without the knowledge and supervision of the US forces. No prior impact study was done, the planning was flawed, the dumping standards were violated and inspections were non-existent.[604] This experience resulted in numerous casualties due to careless handling of munitions and in latter accidental recoveries.[605]

Not all former sea-dumping operations pose immediate or known problems. The hazards depend on the properties of the CW agents; some do not deteriorate well and do not lose their toxicity with time.[606] Yet most sea-dumped CW are now harmless; the agents have dissolved, lost their toxicity and the munitions have corroded. Many CW, especially when dumped in deep water or in concrete casings, remain buried at the bottom of the sea.[607] However, some dumping operations were

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[599] *SIPRI Yearbook 1979*, 479; *SIPRI Yearbook 2003*, 658.
[600] Kurata, n 508, 84 and *SIPRI Yearbook 1979*, 479.
[601] Ad Hoc Working Group on Chemical Munitions (CHEMU), *Report on Chemical Munitions Dumped in the Baltic Sea*, January 1994 to the 15th meeting of the Helsinki Commission (HELCOM); Ad Hoc Working Group on Chemical Munitions (CHEMU), *Final Report on Chemical Munitions Dumped in the Baltic Sea*, March 1995, to the16th meeting of the Helsinki Commission (HELCOM); SIPRI, *Yearbook of World Armaments and Disarmament* 1991, 101; *SIPRI Yearbook 1979*, 479; Ooms, note 44, 125;
[602] Ibid.
[603] Kurata, n 508, 77-94.
[604] Ibid, 93.
[605] Ibid, 77-94.
[606] Pandy R Sinish and Joel A Vilensky, 'WMDs in our Backyard' (2005) 19 (4), *Earth Island Journal,* 31-34.
[607] Ooms, n 44, 125 and Ad Hoc Working Group on Chemical Munitions (CHEMU), *Report on Chemical Munitions Dumped in the Baltic Sea*, January 1994 to the 15th meeting of the Helsinki Commission (HELCOM), 11-13, 15.

conducted carelessly. For example munitions dumped in wooden casings have drifted from the dumping sites.[608]

Land-buried CW also create later problems yet they better preserved and more harmful than sea-dumped CW. As with sea-dumped CW, they are accidentally recovered and create human and environmental hazard, and chemicals can leak and pollute water and soil.[609]

Historical cases of recovery of buried CW occurred in the former Federal Republic of Germany and in Czechoslovakia and Hungary.[610] More recently in the US, the Spring Valley near Washington is undergoing a massive operation of soil removal and decontamination as a consequence of buried CW dating back to the First World War.[611] The extent of the consequences for human health is as yet unmeasured.[612]

CW disposed of using early methods are a significant issue today. Early destruction methods being defective, they do not result in the complete and irreversible elimination or destruction of CW. As a result they postpone the disarmament of these defectively destroyed CW to a later date and create the need for a 're-disarmament' of these CW.[613] Defectively destroyed CW which are discovered must be removed, secured and destroyed again.

The supplementary disarmament effort is quite demanding technically and financially and adds to the already heavy CW disarmament task.[614] It may be technically complex since recovered CW require special caution for their handling and disposal.[615] It requires international cooperation and assistance to determine responsibilities and compensate damages.[616] Overall the recovery, removal and disposal of defectively destroyed CW have similar implications than CW destruction,

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[608] Ad Hoc Working Group on Chemical Munitions (CHEMU), *Report on Chemical Munitions Dumped in the Baltic Sea*, January 1994 to the 15th meeting of the Helsinki Commission (HELCOM), 15.
[609] *SIPRI Yearbook 1991*, 101-102
[610] Ibid.
[611] *SIPRI Yearbook 2003*, 658-9; Pandy R Sinish and Joel A Vilensky, 'WMDs in our Backyard' (2005) 19 (4), *Earth Island Journal,* 31-34.
[612] Ibid
[613] Kurata, n 508, 89.
[614] *SIPRI Yearbook 1991,* 101.
[615] *SIPRI Yearbook 1991*, 101-2; see Kurata, n 508, 90.
[616] Ibid; David Pugliese, 'Bombs on the Beach' (2002) 58 (4), *Bulletin of the Atomic Scientists*, 55-60.

plus specific difficulties relating to their access and to the technical properties of obsolete weapons.[617] They remain a complex and significant issue.[618]

It is difficult to anticipate and plan the size required disarmament effort; CW may be recovered at any time and there is much uncertainty and missing information concerning former disposal operations.[619] The precise records of these operations and the identities of people responsible are either non-existent or no longer available. Some operations were done covertly[620] or were unreported.[621] As a result many CW are unaccounted for; the disposal sites, types and quantities of CW are often unknown.

The environmental and human safety drawbacks from defectively disarmed CW are uncertain. Long term exposure to CW, and especially to nerve agents, has unknown effects.[622] The long-term effects of CW on the environment are not known either, nor are they measurable; they could be permanent and irreversible.[623] In the meantime, defectively destroyed CW create hazardous zones and cause concern for states and for the affected communities.[624]

Finally, buried and dumped CW raise other issues such as evidence to substantiate allegations of former CW capabilities, of CW disposal –covert or not- or abandonment in other countries, of violation of disposal rules and of lack of information to the public.[625] Defectively destroyed CW can be a sensitive issue between former belligerents.[626]

3. Cases of Defectively Destroyed Chemical Weapons.

There are numerous cases of early CW disarmament operations using former destruction methods that have had a negative impact at a later date. The cases of CW

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[617] Gabriela Coman-Enescu, 'The Disposal of Abandoned Chemical Weapons and the Potential Impact of the CWC' (2001), OPCW Synthesis, 1-3.
[618] *SIPRI Yearbook 2003*, 659.
[619] Gabriela Coman-Enescu, 'The Disposal of Abandoned Chemical Weapons and the Potential Impact of the CWC' (2001), OPCW Synthesis, 1-3.
[620] Kurata, n 508, Ooms, n 44, 125.
[621] Ad Hoc Working Group on Chemical Munitions (CHEMU), *Report on Chemical Munitions Dumped in the Baltic Sea*, January 1994 to the 15th meeting of the Helsinki Commission (HELCOM), 9-11.
[622] Ronald Brecher, 'Nerve Agents' (2004-2005)16 (6), *HazMat Management*, 44.
[623] Pandy R Sinish and Joel A Vilensky, 'WMDs in our Backyard' (2005) 19 (4), *Earth Island Journal,* 31-34.
[624] Erin Emery, 'Preparedness is Way of Life Near Mustard-gas Stockpile' *Denver Post* (Denver, Colo.) 23 December 2003, B04 ; Brenda Norrell, 'Skull Valley's Nerve Gas Neighbors' *Knight Ridder Tribune Business News* (Washington), 26 October 2005, 1.
[625] *SIPRI Yearbook 1991.*
[626] Center for Nonproliferation Studies, 'Abandoned Chemical Weapons in China' (2004).

dumped in the Baltic Sea and of CW buried in China illustrate the implications related to defectively disarmed CW.

The Baltic Sea was a dumping site for old European and Soviet CW dating back to the First World War. A special working group of the Helsinki Commission, the body mandated with implementing the Helsinki Convention,[627] studied chemical munitions dumping in the Baltic Sea and released two reports on this topic.[628]

Concerning the CW disarmament operations, the reports reveal defective sea-dumping operations, involving careless and random dumping at un-chartered locations, and cases of munitions thrown overboard during transportation to the dumping sites.[629] Yet other CW munitions were disposed of in the hold of ships which were deliberately sunk, thus preventing chances of later recovery.[630]

Concerning the potential hazards caused by CW disarmament operations the first report concludes that the risk caused by chemical munitions to people is rather limited and the risk of pollution or any significant damage to the marine environment 'unlikely'.[631] There are known, random occurrences of CW recovered by fishermen, sometimes causing injuries. Yet the report underlines that it is most likely the fishing activities during which CW are picked up which create the risk for fishermen.[632]

Today the three known former dumping sites in the Baltic are marked. Precautions and guidelines for fishermen exist for CW findings.[633] Finally international cooperation results in studies, sampling and analysis at former dumping sites, and a broad diffusion of information to the concerned population.[634]

The recovery and handling of formerly dumped CW are the main threats underlined by the studies on the Baltic Sea dumping. According to the reports the overall outcome of early disarmament operations in the Baltic Sea is not alarming and no cause for great or immediate concern in terms of human safety and environmental protection. It can be remarked, however, that none of the efforts on old and

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[627] '*Convention on the Protection of the Marine Environment of the Baltic Sea'* opened for signature 1992 (entered into force 17 January 2000) ('*Helsinki Convention*').
[628] 'Ad Hoc Working Group on Chemical Munitions (CHEMU), *Report on Chemical Munitions Dumped in the Baltic Sea*, January 1994 to the 15th meeting of the Helsinki Commission (HELCOM) and Ad Hoc Working Group on Chemical Munitions (CHEMU), *Final Report on Chemical Munitions Dumped in the Baltic Sea*, March 1995, to the16th meeting of the Helsinki Commission (HELCOM).
[629] CHEMU, *Report on Chemical Munitions*, (1994), 15.
[630] Ooms, n 44, 125 and CHEMU, *Report on Chemical Munitions*, (1994), 11-13, 15.
[631] CHEMU, *Report on Chemical Munitions*, (1994), 26-30 and CHEMU, *Final Report on Chemical Munitions*, (1995), 1.
[632] CHEMU, *Report on Chemical Munitions*, (1994), 30-31
[633] Ibid, 14.
[634] Ibid, 31, 35 and CHEMU, *Final Report on Chemical Munitions*, (1995).

abandoned CW in the Baltic Sea result from the application of CWC provisions and that these precautions are the result of a regional agreement on environmental protection.

Similar sea-dumping operations have been carried out in the White, Barents and Kara Seas where significant amounts of mustard gas and lewisite were disposed of by the former SU. As opposed to the Baltic Sea, no precise knowledge of the sites and munitions dumped is available. It is suspected that the degradation of the chemicals has led to hazardous zones, that degradation could eventually enter and contaminate the food chain.[635] Unfortunately while there is much speculation about the potential damage of these dumping operations, little information is disclosed to support these suspicions.[636]

The main example of recovery of buried CW is the Japanese CW abandoned on Chinese territory, which highlights the problems relating to buried CW.[637] Many buried CW have been found on Chinese soil, and have caused incidents and casualties. A 1999 Memorandum of Understanding deals with the buried CW.[638] According to a 2003 agreement a destruction plant must be built to destroy the CW, at Japan's expense.[639] In spite of this cooperation numerous technical and political issues remain unresolved.

The weapons are now stored in an unsafe and unsecured storage in warehouses; such storage is vulnerable to attacks and theft.[640] Cooperation concerning the damages and technicalities related to CW recovery is insufficient. For example, Japanese tribunals are reluctant to compensate and offer damages to Chinese individuals affected by these CW.[641] Finally according to the interpretation by Japanese courts the bilateral agreement is not retroactive.[642]

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[635] Pandy R Sinish and Joel A Vilensky, 'WMDs in our Backyard' (2005) 19 (4), *Earth Island Journal,* 31-34.
[636] Chapter 4 on the Soviet chemical legacy.
[637] Hongmei Deng and Peter O'Meara Evans, 'Social and Environmental Aspects of Abandoned Chemical Weapons in China' (1997), *The Nonproliferation Review*, 101-108.
[638] Center for Nonproliferation Studies, 'Signing of the Memorandum of Understanding between Japan and China on the Destruction of Abandoned Chemical Weapons in China' (1999).
[639] Center for Nonproliferation Studies, 'Abandoned Chemical Weapons in China' (2004).
SIPRI Yearbook 2003, 658.
[640] Pandy R Sinish and Joel A Vilensky, 'WMDs in our Backyard' (2005) 19 (4), *Earth Island Journal,* 31-34.
[641] Center for Nonproliferation Studies, 'Abandoned Chemical Weapons in China' (2004).
[642] Jehangir Pocha, 'Chinese Seek Redress over Japan's Discarded Arms Cleanup Incomplete Decades After Combat' *Boston Globe* (Boston), 3 May 2004, A10.

The CWC is largely silent on defectively destroyed and recovered CW. Some of these CW fall under the definition of old CW, in which case they are treated as toxic waste.[643] Other discovered CW fall under the CW disarmament regime; they must be declared shortly after their discovery and destroyed like other CW.[644] Unfortunately the CWC cut-off dates exclude and exempt dumped or buried CW from these disarmament obligations.[645] As a consequence CWC member states have no obligations concerning their defectively destroyed CW. It is the author's view that in respect of early disarmament efforts the CWC disarmament regime is lacking as it offers little guidance on the matters of defectively destroyed CW. It is the decision and responsibility of the concerned states to agree on CW disarmament measures, and to cooperate and implement them to effectively re-disarm defectively disarmed CW.

C. Modern Chemical Weapons Destruction Methods

The legacy of early CW destruction methods, among other factors, spurred the need to find new CW destruction methods. New CW destruction methods can be partly attributed to increasing preoccupation with environmental protection and human safety, although the exact start of efforts to seek new destruction methods remains, to the author's knowledge, unclear.[646]

1. The Necessity of Finding a Satisfactory Chemical Weapons Destruction Method

Increased scientific and technical knowledge about pollution and environmental health contributed to a new approach to CW destruction.[647] The exact effects and hazards of chemicals on human health and environment were not fully known or understood. [648] However, concerns increased over the potential damages of chemical demilitarization.[649] For example, in the context of bilateral cooperation, the open-pit burning method was opposed by the SU for environmental reasons and abandoned.[650]

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[643] Verification Annex Part IV (B) paras. 6-7.
[644] Chemical Weapons Convention art IV para 9.
[645] Chemical Weapons Convention art IV para. 17.
[646] *SIPRI Yearbook 1979*, 479, 485; SIPRI, *Yearbook of World Armaments and Disarmament* 1991, 101-2 and General Accounting Office Report, '*Issues Related to DOD's Management'*, GAO/T-NSIAD-95-185, July 1995, 5, 9.
[647] L Rosival, 'Biomedical Aspects of the Destruction and Conversion of Chemical Warfare Agents' in SIPRI (ed) *Chemical Weapons: Destruction and Conversion* (1980), 107, 108.
[648] Vojvodic and Binenfeld, n 195, 104.
[649] Ibid.
[650] Leonov and Sheluchenko, n 589,11, 96.

Furthermore public awareness and concerns about the dangers of early methods resulted in a strong opposition to such methods.[651]

This new approach to CW destruction methods occurred in the late 1970's, and influenced the negotiations on CW disarmament.[652] Before then, financial matters and urgency were the main preoccupations in chemical demilitarization over safety and environmental considerations.[653] Early CW destruction methods were abandoned and subsequently prohibited in the CWC disarmament regime;[654] at the same time chemical demilitarization programs sought and developed new destruction methods.

As a result of this new approach CW destruction methods must meet safety and environmental standards and requirements, and the public usually knows of and is involved in the disarmament process. Early destruction methods cannot meet these standards and requirements, if only because of their environmental damage.[655] Early destruction operations were also a strictly military matter and not subject to public scrutiny. Although today all the information concerning disarmament operations is not disclosed, [656] most CW possessors involve the public in the chemical demilitarization process. In turn chemical demilitarization must often meet conditions of efficiency and of accountability.

There is a clear need to replace early CW destruction methods with environmentally safe and harmless, but also effective and reliable methods. Finding such methods is challenging in many respects. Destruction methods require a substantial research and development effort; they are technologically complex and their development is time-consuming. They are also financially onerous and must therefore meet financial and 'political' requirements in concerned states before they can be adopted.

In comparison to early destruction methods, modern CW destruction methods are far more complex and call for a different, planned approach to CW disarmament.

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[651] *SIPRI Yearbook 1979,* 479, 485 and SIPRI, *Yearbook of World Armaments and Disarmament* 1991, 101-2.
[652] Ibid. O. A Reutov and K.K Babievsky, 'Some aspects of the Problem of the Destruction of Chemcial Warfare Agents' in SIPRI (ed) *Chemical Weapons: Destruction and Conversion* (1980), 117, 118 ; *SIPRI Yearbook 1979,* 479.
[653] *SIPRI Yearbook 1979*, 479.
[654] Chemical Weapons Convention art IV.
[655] Vojvodic and Binenfeld, n 195, 97 ; Lohs, n 189, 68 and Ooms, n 44, 126.
[656] Pandy R Sinish and Joel A Vilensky, 'WMDs in our Backyard' (2005) 19 (4), *Earth Island Journal,* 31-34 ; Report of the OPCW on the Implementation of the Chemical Weapons Convention in 2003, ninth Session of the Conference of the States Parties; document C-9/5, 30 November 2004, 2.

A detailed study of CW destruction methods is beyond the scope of this study; the key issues related to CW destruction methods are briefly introduced.

The US' experience with CW disarmament is used throughout this part of the study as a basis for an overview of modern CW destruction methods. The USA is in the lead in the area of CW destruction methods. It is also the second largest CW possessor, and most information on CW destruction is available public knowledge.

2. Experimentation With Chemical Weapons Destruction Methods: the United States' Choice of Incineration

The USA had considerable experience with CW disarmament; it was undertaken before the conclusion and entry into force of the CWC.[657] A comprehensive chemical demilitarization ('Chemdemil') program started in 1985, aiming at eliminating US CW.[658] The US Department of Army was mandated with the destruction of all CW stockpiles. The Chemdemil program included research and development of alternative destruction methods in order to meet national requirements on health and environmental safety.[659] Early destruction methods were excluded by safety and environmental protection preoccupations. Incineration was chosen as the most suitable CW destruction method in the USA and was intended as the only method for US Chemdemil.[660]

The decision process to select and adopt a destruction method will be presented before examining CW destruction methods, as it provides insight into the difficulties of CW disarmament. The US National Environmental Protection Act (NEPA) of 1969 obliges every federal agency to take into account the environmental impact of decisions. Accordingly the Army must consider environmental concerns in its decisions, inform the public, and identify alternatives to achieve its goal which are

[657] General Accounting Office Report, '*Chemical Demilitarization: Funding Status of the Chemical Demilitarization Program*', GAO/NSIAD-99-232R, July 1999, 1.
[658] Heather Pierce, 'Citizen resistance to Chemical Weapons Incineration: can NEPA Give Local Communities Leverage Over Military Arms Decommissioning Programs?' (2005) 32 (2), *Boston College Environmental Affairs Law Review,* 459-491; *U.S Public Law 99-145, (1985) and Department of Defense (DOD) Authorization Act of 1986;* General Accounting Office Report, '*Chemical Demilitarization: Funding Status of the Chemical Demilitarization Program*', GAO/NSIAD-99-232R, July 1999, 2; General Accounting Office Report, '*Issues Related to DOD's Management'*, GAO/T-NSIAD-95-185, July 1995, 12-14.
[659] General Accounting Office Report, '*Issues Related to DOD's Management'*, GAO/T-NSIAD-95-185, July 1995, 9; see also General Accounting Office Report, '*Advantages and Disadvantages of Alternatives to Incineration*', GAO-94-123, March 1994, 1-28.
[660] Vojvodic and Binenfeld, n 195, 96.

environmentally safer.[661] With regard to CW destruction methods, although NEPA does not impose the adoption of the environmentally preferable method, it requires Environmental Impact Statements (EIS) before a destruction project can be adopted and similar statements (Supplementary, Draft Programmatic and Final Programmatic Environmental Impact Statements) throughout the adoption process.[662]

The absence of any of these statements is ground for legal actions against a decision on a destruction method, which has happened with incineration.[663] Other grounds for legal actions include the selection of a contractor, trial runs, public disclosure of information and various environmental, operation and disposal permits.[664] The acquisition of the environmental and transportation permits necessary for destruction is particularly vulnerable to local and political moods.[665] The permits allow the CW destruction facilities to operate and include threshold emission standards and waste-storage limits.[666] Without permits, destruction activities may be postponed or simply not take place.

Various levels of the US administration are involved in the CW disarmament process. Decisions largely rest at the federal level yet they are specific to each site and made on a case-by-case basis for each CW destruction facility.[667] Congress is involved in the Chemdemil decisions at the national level; it authorizes projects, releases funding and through various commissions and examines Chemdemil results.[668]

Following this decision process, incineration was adopted as the only method for the Chemdemil program in a 1982 decision by the US Army (made public in 1988).[669] With this method, chemical agents would be incinerated and the remaining

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[661] Heather Pierce, 'Citizen resistance to Chemical Weapons Incineration: can NEPA Give Local Communities Leverage Over Military Arms Decommissioning Programs?' (2005) 32 (2), *Boston College Environmental Affairs Law Review,* 459-491.
[662] Ibid
[663] Ibid.
[664] Ibid.
[665] 'Pentagon uses depot as political football: military bureaucrats are erecting roadblocks against the planned destruction of tons of mustard gas at the US Army deport near Pueblo' *Denver Post* (Denver), 14 January 2005, B.06
[666] Lois R ember, 'VX disposal begins: army holds off on shipping hydrolysate from Indiana to New Jersey for secondary treatment' (2005) 83 (21), *Chemical and Engineering News,* 36-37.
[667] General Accounting Office Report, '*Chemical Demilitarization: Funding Status of the Chemical Demilitarization Program*', GAO/NSIAD-99-232R, July 1999, 2.
[668] Michael R Greenberg, 'Public Health, Law and Local Control: Destruction of the US Chemical Weapons Stockpile' (2003) 93 (8), *American Journal of Public Health,* 1223-4.
[669] *SIPRI Yearbook 1991*, 95.

metal parts of munitions decontaminated.[670] The incineration process was first evaluated and assessed at the 'pilot' CW destruction facility, the Johnston Atoll Chemical Disposal System (JACADS), which was the model for the eight mainland destruction facilities.[671]

Experimentation with incineration also took place in Tooele, Utah, with the Chemical Weapons Munitions Disposal System built in 1979.[672] The first full-scale CW destruction facility using incineration was also built there in 1993, based on the lessons and experiences from the JACADS and Tooele pilot plants. [673] The Johnston Atoll plant has recently been dismantled, having completed its entire destruction assignment.[674]

The US Chemdemil strategy was to build a destruction plant at each of the eight mainland CW storage sites for on-site destruction, using incineration.[675] Unfortunately the incineration method was met with strong public opposition from the very beginning of the Chemdemil program. Public protests, but also national regulations on the transportation and destruction of dangerous chemicals,[676] forced the US Army into seeking other, safer methods of disposal from the early 1990's.[677] Today four of the eight destruction sites use (or will use when the destruction plants are operational) alternative methods to incineration, such as neutralization, biodegradation and oxidation of chemicals.[678]

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[670] Ibid, 95, 100.
General Accounting Office Reports, '*Chemical Weapons: Destruction Schedule Delays and Cost Growth Continue to Challenge Program Management'*, GAO-04-634T, April 2004, 7 and '*Chemical Weapons: better Management Tools Needed to Guide DOD's Stockpile Destruction Program*', GAO-04-221T, October 2003, 10.
[671] *SIPRI Yearbook 1991*, 95-97, 100; *SIPRI Yearbook 1979*, 480.
[672] Ibid; Heather Pierce, 'Citizen resistance to Chemical Weapons Incineration: can NEPA Give Local Communities Leverage Over Military Arms Decommissioning Programs?' (2005) 32 (2), *Boston College Environmental Affairs Law Review,* 459-491.
[673] Heather Pierce, 'Citizen resistance to Chemical Weapons Incineration: can NEPA Give Local Communities Leverage Over Military Arms Decommissioning Programs?' (2005) 32 (2), *Boston College Environmental Affairs Law Review,* 459-491.
[674] General Accounting Office Report, '*Chemical Weapons: better Management Tools Needed to Guide DOD's Stockpile Destruction Program*', GAO-04-221T, October 2003, 3-4; *SIPRI Yearbook 2003*, 656.
[675] Heather Pierce, 'Citizen resistance to Chemical Weapons Incineration: can NEPA Give Local Communities Leverage Over Military Arms Decommissioning Programs?' (2005) 32 (2), *Boston College Environmental Affairs Law Review,* 459-491.
[676] *SIPRI Yearbook 1979*, 4 79; Heather Pierce, 'Citizen resistance to Chemical Weapons Incineration: can NEPA Give Local Communities Leverage Over Military Arms Decommissioning Programs?' (2005) 32 (2), *Boston College Environmental Affairs Law Review,* 459-491.
[677] General Accounting Office Report, '*Issues Related to DOD's Management'*, GAO/T-NSIAD-95-185, July 1995, 9-10; *SIPRI Yearbook 1979*, 480.
[678] Heather Pierce, 'Citizen resistance to Chemical Weapons Incineration: can NEPA Give Local Communities Leverage Over Military Arms Decommissioning Programs?' (2005) 32 (2), *Boston*

Incineration remains the object of a constant tug-of-war between supporters and opponents and is frequently used as a political bargaining chip.[679] The population living near storage sites and environmental groups oppose the method, arguing a danger to public health and environmental hazards.[680] Countless technical difficulties have also fuelled opposition to the method, from minor incidents to plants shutdown and delays due to a slow destruction pace.

Supporters of the method argue the swiftness of the process and with it, compliance with the CWC deadlines. Furthermore, incineration is an operational, available, efficient and affordable choice. It is said to be the 'most technologically advanced' method, and that it is less dangerous than CW storage.[681] However, storage being a very poor alternative, in the author's opinion this last argument appears unconvincing. In spite of the controversy over the incineration method it appears unlikely to be replaced, for lack of any suitable alternative.

Information on other CW possessor's destruction methods is much sparser. Russia encounters specific difficulties in finding a destruction method.[682] Like other CW possessors it has attempted and discarded a number of methods.[683] It finally settled for a two-step solution, thermo-chemical neutralization,[684] which involves the detoxification of chemical agents followed by incineration.[685] The method also deals with munitions.[686] It is thought to meet environmental, safety and effectiveness requirements and to be 'extremely reliable.'[687] Yet since methods vary for each type of CW,[688] alternative methods must be sought for certain agents which require a specific treatment (lewisite for example). Russia has also looked into conversion methods.[689]

College Environmental Affairs Law Review, 459-491; *SIPRI Yearbook 2003,* 656; General Accounting Office Reports, '*Chemical Weapons: Destruction Schedule Delays and Cost Growth Continue to Challenge Program Management'*, GAO-04-634T, April 2004, 4 and '*Issues Related to DOD's Management'*, GAO/T-NSIAD-95-185, July 1995, 5.

[679] General Accounting Office Report, '*Issues Related to DOD's Management'*, GAO/T-NSIAD-95-185, July 1995, 5; Heather Pierce, 'Citizen resistance to Chemical Weapons Incineration: can NEPA Give Local Communities Leverage Over Military Arms Decommissioning Programs?' (2005) 32 (2), *Boston College Environmental Affairs Law Review,* 459-491.

[680] Ibid.

[681] *SIPRI Yearbook 2003,* 655-6; SIPRI, *Yearbook of World Armaments and Disarmament* 1991, 95-97.

[682] Chapter 4 on Russian chemical demilitarization.

[683] Leonov and Sheluchenko, n 589, 96-7.

[684] *SIPRI Yearbook 1991*, 100.

[685] Leonov and Sheluchenko, n 589,97.

[686] Ibid, 97-98.

[687] Ibid, 98.

[688] Vojvodic and Binenfeld, n 195, 97.

[689] *SIPRI Yearbook 1991*, 99; Leonov and Sheluchenko, n 589, 99.

The choice of a destruction method, and more generally the operation of CWDF is clearly a recurring problem for CW possessors. In addition to the technical challenges there are political and economic interests involved which may affect the disarmament process. Most preoccupations blocking the destruction process are domestic, and occur at the national or infra-national level. In the author's view these issues are quite remote from the CWC disarmament regime and are not, theoretically an international concern. However, they eventually affect the CWC since they can influence compliance with it.

Issues relating to disarmament occurring at the domestic level should not be neglected; they have become an international concern. More cooperation and concerted efforts concerning destruction methods is called for. Unfortunately the CWC is mostly silent on the matter of destruction methods and provides little guidance.

3. Alternative Destruction Methods

Because of the difficulties in finding and adopting a suitable CW destruction method, new methods have been looked into to replace or corroborate existing methods. The degradation, biodegradation, photochemical degradation, chemical degradation and cryofracture destruction methods have been considered and experimented in the US.[690] Tow out of four alternative destruction methods to incineration have been selected for destruction facilities.[691] Other methods envisaged included destruction by nuclear explosion,[692] and a method developed by Australia involving electrical current.[693] Russia studied thermo-chemical and photo-chemical destruction of CW agents; thermo-technical destruction; thermal destruction, destruction by underground nuclear explosions, and biodegradation for liquid chemical agents.[694] None of these alternatives was satisfactory.

Alternatives methods have numerous downsides. New methods are time and resource consuming.[695] Numerous phases are required before adoption, including research and development, testing, plant construction, environmental impact studies

[690] *SIPRI Yearbook 1991*, 100
[691] Heather Pierce, 'Citizen Resistance to Chemical Weapons Incineration: can NEPA Give Local Communities Leverage Over Military Arms Decommissioning Programs?' (2005) 32 (2), *Boston College Environmental Affairs Law Review,* 459-491.
[692] Ibid.
[693] *SIPRI Yearbook 1991*, 101.
[694] Leonov and Sheluchenko, n 589, 99.
[695] *SIPRI Yearbook 1991*, 101.

and safety and health studies,[696] among other legal and technical requirements which must be fulfilled before a destruction plant is operational.

As the CWC deadlines (often already extended) for the achievement of CW destruction approach, CW possessors cannot afford to expand their choice for CW destruction methods. Unless it can meet a certain destruction rate, the adoption of a new destruction method would further delay the disarmament process, not to mention increase costs.

4. The Question of Conversion

The matter of CW destruction methods brings up the conversion debate. The debate focuses on whether conversion of CW (and their by-products) into products usable for commercial purposes should be attempted instead of destroying them. Conversion is made possible due to the dual-use nature of chemical products.

The conversion process is similar to destruction, with the difference that by-products can be used for peaceful, authorized purposes. The outcome of the debate is somewhat unclear, yet it appears that most arguments oppose the conversion of CW or their components into commercial products,[697] mostly because it is not profitable.

The question of conversion is more suited to former CWPF, which can be converted into CWDF or into facilities performing authorized activities.[698] The CWC allows such conversions on a case-by-case basis, provided certain precautions and conditions are met.[699] The intent is to ensure that converted facilities cannot be reverted and used for CW production.

An example of former CWPF conversion is the authorization for Libya to turn its CW Rabta plants into facilities conducting peaceful pharmaceutical research.[700] However, this decision was also based on political consideration; it was intended as an incentive for other states to join the CWC, with the possibility to convert instead of destroying.[701] This was believed to help 'universal adherence' to the CWC.[702]

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[696] General Accounting Office Report, '*Issues Related to DOD's Management'*, GAO/T-NSIAD-95-185, July 1995, 9-10;
[697] Contra Lohs, n 189, 67-76.
[698] Chemical Weapons Convention art V paras. 12-14; Verification Annex Part V, paras. 18-25, 58-63.
[699] Verification Annex Part V paras 64-69 for the conversion procedure and paras 70-72 for the conditions of conversion.
[700] Conference of the States Parties, *'Request by the Libyan Arab Jamahiriya to Use the Chemical Weapons Production facilities Rabta Pharmaceutical Factory 1 and Rabta Pharmaceutical Factory 2 (phase II) in Rabta, the Libyan Arab Jamahiriya for Purposes Not Prohibited Under the Chemical Weapons Convention'* , ninth session, decision C-9/DEC.9 (30 November 2004), 1-2.
[701] Lois R Ember, 'Altering a Treaty' (2004) 82 (43), *Chemical and Engineering News*, 13.

In the author's view such a leap seems simplistic and overlooks the motivations behind a state's refusal to join the CWC. Furthermore there are few states suspected of having a CW capability.[703] It seems unlikely they would have many CWPF to destroy, and CWPF destruction does not seem to be the main reason to justify refusal to join the CWC. Rather, it is the intrusive inspections and declarations of peaceful chemical activities and the opening of its chemical industry to international scrutiny which is the greater obstacle, in spite of confidentiality guarantees.[704]

Concerning the destruction of CWPF, there is little public information about the facilities and the methods for their destruction or dismantlement. We do know about early CWPF destruction methods based on the decontamination of equipment and facilities, followed by dismantlement.[705] This procedure was costly, lengthy and required qualified personnel.[706] Depending on the toxicity of the chemicals involved, costs, precautions and requirements were expected to vary according to each facility.[707]

It appears that CWPF do not pose major difficulties in terms of disarmament. The CWC destruction obligation extends to production facilities, filling and assembly lines, yet the overall number of facilities directly concerned by the obligation is limited.[708] Today there are few remaining facilities which have not been either destroyed or converted; the best part of the CW facilities disarmament obligation has been met.[709] The destruction of remaining CWPF which are temporarily converted for other purposes is postponed until CW destruction is completed. The disarmament of CW is the most pressing and preoccupying matter.

Conclusions can be drawn on CW destruction methods from the early methods to modern, elaborate methods. Firstly, a destruction method is a necessary condition for CW disarmament; it cannot be dismissed as a solely technical matter. In the CWC,

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[702] Ibid
[703] Conference of the States Parties, '*Report of the OPCW on the Implementation of the Chemical Weapons Convention in 2003'*, OPCW document C-9/5, ninth session (30 November 2004), 1 ; Lois Ember, 'Some Nations Fail to Draft Key Treaty Measures' (2005) 83 (46), *Chemical and Engineering News,* 14 ; Lois R Ember, 'Altering a Treaty' (2004) 82 (43), *Chemical and Engineering News*, 13.
[704] Hassan Mashhadi, 'The Cost of the Chemical Weapons Convention for the Developing Countries' (1993) 16, *Disarmament*, 79, 87; Shah, n 69, 99.
[705] Mikulak, n 155, 57-76.
[706] Ibid, 65.
[707] Ibid.
[708] Conference of the States Parties, *'Report of the OPCW on the Implementation of the Chemical Weapons Convention in 2003',* OPCW doc C-9/5, ninth Session, 30 November 2004, 5.
[709] Ibid.

states which fall under disarmament obligations are obliged to have a destruction plan, which includes a disarmament schedule and a method.[710] They must specify how they intend to meet the destruction obligation and its requirements. The realization of CW destruction relies on finding and operating an effective method of destruction.

Unfortunately information on destruction technologies is sparse and spread; it is usually very technical and calls for scientific knowledge. Although these considerations seem very far-flung from the international law of arms control, and from the CWC, the details of CW destruction methods correspond to the convention's implementation; however technical, they are an indispensable aspect of a disarmament instrument. These aspects of the CW disarmament regime are usually overlooked in publications on CW disarmament. In the author's view information about CW possessor's progress and efforts with destruction methods should be made public and displayed in the OPCW annual reports in greater detail. The difficulty of finding a suitable CW destruction method is further complicated by the requirements that a method must meet to be accepted by both the CWC and national standards.

Section 2: The Requirements of the Chemical Weapons Disarmament Process

The destruction of CW must meet environmental protection and human safety requirements imposed by the CWC[711] and yet must be completed within its deadlines and at reasonable costs. These requirements are difficult to meet; they complicate CW destruction and are often contradictory.

A. Environmental Protection and Public Safety Obligations

Environmental protection and public safety from the potential risks of CW destruction are crucial requirements. A destruction method cannot be adopted and operated unless it meets these conditions. Environmental protection in CW disarmament is the requirement that is most difficult to meet.[712]

1. The Sources of Environmental Protection and Safety Obligations.

The disarmament of CW has been influenced by the growing preoccupation with environmental protection and human safety in chemical demilitarization. This

[710] Verification Annex Part IV (A) paras 6, 12-14 and 29-36.
[711] Chemical Weapons Convention art IV para 10 and art IV para 11.
[712] Ooms, n 44, 126.

preoccupation can be largely attributed to public awareness of and concern over chemical demilitarization activities within CW possessors.[713] It was agreed in the CWC negotiations that disarmament must take into account environmental protection and safety.[714]

The preoccupation with environmental protection and human safety in CW disarmament operations has been expressed in various disarmament instruments. Research was conducted in the context of bilateral efforts to find a safe and environmentally sound CW destruction method, resulting in reciprocal visits, cooperation and exchange of information.[715] The 1990 Bilateral Disarmament Agreement imposed environmental and safety conditions on CW disarmament:[716]

> Each Party, during its destruction of chemical weapons, shall assign the highest priority to ensuring the safety of people and to protecting the environment. Each party shall destroy its chemical weapons in accordance with stringent national standards for safety and emissions.

Member states were also expected to 'cooperate regarding methods and technologies for the safe and efficient destruction of chemical weapons.'[717] This agreement was followed by the Weapons Destruction and Non-Proliferation Agreement, which concentrated on cooperation and assistance for weapons destruction.[718] Bilateral efforts focused on technical matters relating to CW destruction and were a significant contribution to safe CW destruction methods.[719]

Similar provisions have been adopted in the CWC. Environmental and safety obligations are spelled out in Article VII on National Implementation Measures which states a general obligation of ensuring the safety of people and of environmental protection.

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[713] *SIPRI Yearbook 1979*, 479.
[714] Ibid, 475; Vojvodic and Binenfeld, n 195, 96.
[715] *SIPRI Yearbook 1991*, 518; Ooms, n 44, 123, 124 and Lundin, n 57, 144.
[716] Bilateral Destruction Agreement art I para 2.
[717] Bilateral Destruction Agreement, art I para 1 (a); *SIPRI Yearbook 1991*, 515-6.
[718] *Agreement Between the USA and Russia Concerning the Safe and Secure Transportation, Storage and Destruction of Weapons and the Prevention of Weapons Proliferation*, signed in Washington on 17 June 1992, entered into force on 17 June 1992 ('Weapons Destruction and Non-Proliferation Agreement'), Conference on Disarmament document CD/1162.
[719] Leonov and Sheluchenko, n 589, 95.

> Each State Party, during the implementation of its obligations under this Convention, shall assign the highest priority to ensuring the safety of people and to protecting the environment, and shall cooperate as appropriate with other states parties in this regard

The same obligation is found in articles on CW and CWPF disarmament; destruction must ensure the safety of people and protect the environment.[720] This general obligation is detailed in the Verification Annex. It extends to all activities relating to CW destruction, namely CW transportation, sampling and storage, along with the destruction of CW and CW facilities.[721] Finally, the CWC explicitly prohibits the use of early, hazardous disarmament methods, 'dumping in any body of water, and burial or open-pit burning.'[722] It can be noted that a significant part of the international assistance for CW disarmament is focused on helping states find an environmentally safe destruction method.[723]

Concerning CWPF, the concerned states must provide 'safety/security measures to be observed during the destruction of the facility in their detailed plans for destruction.'[724] Concerning CW, the general plan for destruction must provide the national standards 'for safety and emissions that destruction must satisfy.'[725] Finally the detailed annual plans for destruction must include 'a detailed description of the products of destruction', but also the 'method of their ultimate disposal' for each facility.[726]

Unfortunately the precise contents of the obligations on human safety and environmental protection are not detailed further in the CWC. It is up to the concerned states to adopt environmental and safety standards and then abide by them. The fulfilment of these obligations can therefore vary greatly between CW possessors, and it is uncertain whether they can all guarantee sufficient environmental protection and human safety. The CWC and its Verification Annex remain vague and unsatisfactory concerning environmental and safety requirements; there is no normative standard.

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[720] Chemical Weapons Convention art IV para 10 and art V para 11.
[721] Ibid, see also art VII para 3; Verification Annex, Part II, para 43; Part IV (A), para 13; Part V, para 33 (g) and Part VI para 7.
[722] Verification Annex Part IV (A) para 13.
[723] ACDA 1996 annual report, II Eliminating CBW <http://dosfan.lib.uic.edu/acda/reports/annual/ch2.htm > (24/09/2005); ACDA 1997 annual report, II Eliminating CBW <http://dosfan.lib.uic.edu/acda/reports/annual/chpt2.htm> (24/09/2005).
[724] Verification Annex Part V para 33.
[725] Verification Annex Part IV (A) para 6.
[726] Ibid, para 31.

Other international instruments on environmental protection and human safety from chemical activities provide norms and standards.[727] These conventions usually restrict the use, release and dumping of hazardous chemicals. They can act as guidelines yet they are not specifically related to CW-matters. To a certain extent the UN is another source of international norms for environmental protection and supports environmental protection in disarmament activities. A series of resolutions have been adopted, entitled 'observance of environmental norms in drafting and implementation of agreements on disarmament and arms control.'[728] The resolutions include the CWC; unfortunately yet again little is said about the contents of 'the relevant environmental norms' which must be referred to. Other UN documents on the topic include Secretary-General's reports.[729]

In spite of the variety of sources imposing environmental protection obligations on CW disarmament, the contents and implementation of this obligation is problematic. Firstly, it can safely be said that CW disarmament is not totally environmentally safe; it necessarily results in waste, emissions and pollution regardless of the method used.[730] Secondly, disarmament must not be too damaging to the environment but cannot be postponed until an environmentally safe destruction method is found, in order to comply with the CWC destruction deadlines. The destruction schedule and the environmental protection norms must adjust to one another so that the application of one does not undermine the authority of the other.

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[727] Untitled document,< http://ww.opcw.org/html/db/cwc/more/relconv_1_frame.html > 24/09/2005. These conventions and protocols include the *Basel Convention*; the *ENMOD treaty*; the *Bamako Convention*; the *Convention for the Cooperation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region* (1981); the *Convention on the Prevention of Marine Pollution from Land-Based Sources* (1974); the *Convention on the Protection of the Mediterranean Sea Against Pollution* (1976) and its 1980 and 1982 Protocols; the *Agreement for Cooperation in Dealing with Pollution of the North Sea by Oil and other Harmful Substances* (1983); the *Convention on Long-Range Trans-boundary Air Pollution* (1979); the *Protocol for Financing of an European Monitoring Programme*; the *Protocol for Reduction of Sulfur Emissions; the Protocol on Nitrogen Oxide Emissions; the Protocol on Emissions of Volatile Organic Compounds* and the *Convention on the Protection of the Black Sea Against Pollution* (1992).

[728] *Observance of Environmental Norms in Drafting and Implementation of Agreements on Disarmament and Arms Control,* General Assembly resolution Res A/RES/59/68 (2004); see also Res 50/70M(12Dec1995), 51/45E(10Dec 1996), 52/38E(9Dec1997), 53/77J(4Dec1998), 54/54S (1Dec1999), 55/33K (20Nov2000), 56/24F (29Nov2001), 57/64 (22Nov2002), 58/45 (8Dec 2003).

[729] Reports of the UN Secretary-General '*Observance of environmental norms in the drafting and implementation of agreements on disarmament and arms control'*, UN docs A/59/129 (2004) and A/55/129 (2000).

[730] Vojvodic and Binenfeld, n 195, 96.

Environmental protection is one the most important conditions that CW destruction methods must meet.[731] Yet how states ensure 'environmental protection' in CW disarmament remains vague.[732] Other conventions on environmental protection provide guidelines but CWC member states remain free to determine their own level of environmental protection. Furthermore the relationship between the CWC and these conventions is undetermined. According to the CWC, CW possessors are free to choose any destruction method as long as they meet environmental protection and human safety conditions. However, in the author's view this freedom can also be explained by a lack of norms. There seems to be a contradiction between the importance of the obligation to ensure environmental protection and the absence of norms to ensure environmental protection. Finally there is little, if any, precedent of environmental protection in disarmament.[733]

2. Measures for Environmental Protection and Safety

Environmental protection and human safety in CW disarmament resulted in the adoption of measures and precautions to meet these obligations.[734] Early environmental protection measures were implemented before the conclusion of the CWC. They included the treatment of the CW decomposition products, as opposed to their dissemination in air or water.[735] Other measures were the detoxification of CW before their elimination,[736] and the regulation of emissions according to national standards.

Today environmental protection measures in CW disarmament include the control of chemical emissions with pollution abatement systems (according to national emission standards),[737] the treatment of waste, of toxic end-products and of by-products of CW destruction.[738] There is clearly progress in the protection of the environment in CW disarmament and destruction operations are more controlled.

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[731] Ibid; Leonov and Sheluchenko, n 589, 95.
[732] Ibid, 104.
[733] Susan Willett, 'Disarming the Costs and Benefits of Arms Control' (2005), 3, *Disarmament Forum,* 22.
[734] Vojvodic and Binenfeld, n 195, 96.
[735] Ooms, n 44, 126.
[736] Lohs, n 189, 67, 68.
[737] General Accounting Office Report, '*Issues Related to DOD's Management'*, GAO/T-NSIAD-95-185, July 1995.
[738] Michael R Greenberg, 'Public Health, Law and Local Control: Destruction of the US Chemical Weapons Stockpile' (2003) 93 (8), *American Journal of Public Health,* 1223; Lois R ember, 'VX disposal begins: army holds off on shipping hydrolysate from Indiana to New Jersey for secondary treatment' (2005) 83 (21), *Chemical and Engineering News,* 36-37.

However, information on environmental protection remains scarce and is very technical.

Concerning the safety of people, the toxic hazards of CW disarmament require the protection of workers involved in the destruction process and of the people living in the vicinity of CW destruction or storage facilities. The toxicological dangers from CW destruction are numerous, including substances to be destroyed (before and during the destruction process), the products resulting from the destruction process and the final products.[739] Measures to meet the obligation of human safety in CW disarmament include medical preparation and emergency preparedness plans.[740] Finally human safety is directly linked to environmental protection, the safe environment being a condition for public health.[741]

There is a double edge to the preoccupation with human safety and environmental protection in CW disarmament. On the one hand, protection of the environment, populations and workers from the effects of toxic chemicals is a qualitative improvement of the CW destruction process. On the other it lays a heavy burden on the destruction task.[742] The environmental and safety requirements narrow the number of suitable destruction technologies.[743] This difficulty only increases as national environmental protection standards rise and become harder to meet.[744] These standards tax and slow the disarmament of CW and verification and monitoring activities.[745] In addition, the requirements of environmental protection generally increase the costs of disarmament, to the extent that '[W]hen arsenals are as large as those in Russia and the United States, the environmental costs of disarmament can become prohibitive and considerable opportunity costs arise.'[746] These obligations conflict with other requirements as they affect the rate of destruction and cause delays.

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[739] Vojvodic and Binenfeld, n 195, 97.
[740] Ibid, 101-3.
[741] L Rosival, 'Biomedical Aspects of the Destruction and Conversion of Chemical Warfare Agents' in SIPRI (ed) *Chemical Weapons: Destruction and Conversion* (1980), 107, 108.
[742] Ooms, n 44, 126 and *SIPRI Yearbook 1979*, 479, 481.
[743] *SIPRI Yearbook 1979*, 475.
[744] General Accounting Office Report, '*Issues Related to DOD's Management'*, GAO/T-NSIAD-95-185, July 1995, 4.
[745] Ooms, n 44, 126-7.
[746] Susan Willett, 'Disarming the Costs and Benefits of Arms Control' (2005), 3, *Disarmament Forum,* 22.

3. Case Study: the Destruction of VX

The case of VX destruction illustrates common technical and political difficulties of CW disarmament, and especially compliance with environmental protection and human safety obligations.[747] The disarmament of VX also highlights issues related to CW storage, transportation and the public opposition to CW disarmament. A series of engineering articles closely follows the destruction of VX at the US CWDF in Newport and provides regular, updated information on this destruction process.

VX is a well known, highly volatile and very dangerous nerve agent, which constitutes 4% of the US declared CW stockpile.[748] The adopted destruction method for VX is neutralization, which theoretically meets environmental and health protection standards. Unfortunately there are several downsides and difficulties to the chosen destruction method.

A key difficulty in VX destruction is the waste resulting from CW destruction, or 'hydrolysate', which is toxic and hazardous. In that respect the adopted method is insufficient to consider VX destroyed according to the CWC definition of destruction. Therefore treatment of the waste is necessary;[749] unfortunately there is no environmentally safe final disposal method. The issue of the VX waste treatment is an example of the difficulties of CW disarmament.

The public opposition to the disposal of toxic substances influences the CW destruction process. With VX, the burial and dumping of the treated hydrolysate has been proposed.[750] The US Army, after advice from the EPA, has concluded that the destruction of VX and of its hydrolysate is safe except for its final disposal in river.[751] Despite studies and assessment of VX treatment and final disposal methods, the public opposes VX destruction plans;[752] arguing that CW destruction and waste

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[747] General Accounting Office Report, 'Chemical Demilitarization: Funding Status of the Chemical Demilitarization Program', GAO/NSIAD-99-232R, July 1999, 2; General Accounting Office Report, '*Chemical Weapons: Destruction Schedule Delays and Cost Growth Continue to Challenge Program Management'*, GAO-04-634T, April 2004, 5; General Accounting Office Report, '*Chemical Weapons: better Management Tools Needed to Guide DOD's Stockpile Destruction Program*', GAO-04-221T, October 2003, 4.

[748] Lois R ember, 'VX disposal begins: army holds off on shipping hydrolysate from Indiana to New Jersey for secondary treatment' (2005) 83 (21), *Chemical and Engineering News,* 36.

[749] Lois R Ember 'Destroying VX: Army's plan to erase nerve agent stocks in Indiana runs into roadblocks' (2004) 82 (15), *Chemical and Engineering News,* 28-29.

[750] Lois R Ember, 'VX disposal begins: army holds off on shipping hydrolysate from Indiana to New Jersey for secondary treatment' (2005) 83 (21), *Chemical and Engineering News,* 36-37.

[751] Ibid.

[752] Government Concentrates, 'CDC concerned about Army's VX disposal' (2005) 83 (15), *Chemical and Engineering* News, 23.

disposal are hazardous for the environment and public health. The US government appears unable to overcome local opposition to the destruction of VX by-products. More generally, although disarmament is generally welcome, the public usually adopts a 'not in my backyard' response to CW destruction issues;[753] the local population does not want to see disarmament taking place anywhere near them.

Until a satisfactory method is found for the final disposal of VX, its destruction can continue only to a certain extent. CWDF are only allowed to store a certain quantity of waste products on-site.[754] When this storage threshold is reached, destruction will eventually have to be interrupted until a satisfactory final disposal solution is found.

The disarmament of VX is mainly stalled because of national environmental and health requirements and norms. For example, the destruction of VX has been interrupted on the grounds that its waste was flammable and therefore hazardous.[755] In the author's view in that respect there is a discrepancy between the CWC disarmament obligations and national environmental and safety standards. As a result the disarmament process is slowed, for example the toxicity of VX waste has interrupted the CW disarmament process.[756] Unfortunately, according to the CWC definition of destruction, it is not complete without the final disposal of the hydrolysate.

The case of VX destruction also highlights the debate opposing CW transportation to on-site CW destruction activities and storage, although it is not specific to VX or to the US. The US chemdemil strategy is founded on on-site storage, destruction and treatment of CW and their dangerous products, including waste. This strategy is supported by the actors involved in CW disarmament, the local population, the Army, environmental groups and politicians. Although it requires building costly CWDF at each storage site, it avoids the problem of transportation.

The transportation and storage debate is complicated. It can be related, if not attributed, to the difficulties of CW disarmament and specifically to the delayed

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[753] Lois R Ember 'Destroying VX: Army's plan to erase nerve agent stocks in Indiana runs into roadblocks' (2004) 82 (15), *Chemical and Engineering News,* 28-29.
[754] Lois R Ember, 'VX disposal begins: army holds off on shipping hydrolysate from Indiana to New Jersey for secondary treatment' (2005) 83 (21), *Chemical and Engineering News,* 36-37.
[755] Lois Ember, 'Army halts VX destruction' (2005) 83 (28), *Chemical and Engineering News,* 13.
[756] Government Concentrates, 'VX nerve gas disposal at Newport, Ind., to begin in fall' (2004) 82 (39), *Chemical and Engineering News,* 18.

completion of CW destruction. Alternative solutions are called for because the disarmament of CW is slow and difficult.

The choice between on-site storage and transportation is sensitive. On the one hand, as with chemicals, transportation of CW and their by-products is both hazardous and difficult. Furthermore transportation of CW is prohibited by US laws; the only possible exception requires authorization from a presidential order. The transportation of CW by-products –or partially destroyed CW- is strictly regulated,[757]

The transportation of chemicals remains a sensitive issue in the USA. Alternative CW destruction methods involving CW transportation have been proposed. In the case of VX, transportation is desirable because of the lack of proper waste treatment and disposal method; unless hydrolysate can be moved and stored off-site, the destruction of VX must be interrupted. Studies assessing the safety of CW or CW waste transportation, handling and shipping have been conducted.[758] However, these are not conclusive and the alternative methods are systematically blocked by politicians.[759]

On the other, there are risks related to the storage of large amounts of dangerous chemicals and on-site storage is increasingly criticized. On-site storage is against the current US national security policy, which advises against the concentration of dangerous chemicals at a same site. It exposes 'sitting ducks'- facilities with dangerous chemicals- vulnerable to attacks or theft.[760] The storage of CW waste products is considered particularly vulnerable to such threats.[761] In the case of VX, its destruction waste being hazardous, its storage before final disposal equals to the storage of CW. Unfortunately off-site treatment implies transportation of the CW destruction products.

This debate is significant for the disarmament of CW because at stake are a faster destruction rate and a reduction of the Chemdemil costs. If CW are transported, fewer destruction facilities must be built and operated, and a smaller number of specialized facilities could achieve higher destruction rates. It also presents important

[757] *SIPRI Yearbook 1979*, 477.
[758] Lois R Ember, 'VX disposal begins: army holds off on shipping hydrolysate from Indiana to New Jersey for secondary treatment' (2005) 83 (21), *Chemical and Engineering News,* 36-37.
[759] Ibid
[760]Jeff Johnson, 'New voices for Plant Security' (2004) 82 (46), *Chemical and Engineering News,* 51-53 ; Jeff Johnson, 'Senate Panel Backs Plant Security Bill' (2005) 83 (18), *Chemical and Engineering News*, 32-33.
[761] Ibid.

financial advantages. Specialized on-site treatment and disposal facilities would no longer be needed and waste treatment could be assumed by private contractors, easing the Chemdemil budget.

In the author's view it is uncertain whether the issues of transportation and storage could have been anticipated during the CWC negotiations. The US experience with CW destruction before the conclusion of the CWC provided some insight on the difficulties to come. For example, the matter of CW transportation is clearly an issue which eventually affects timely and successful disarmament. In that regard, the CWC negotiators could have adopted a more firm guideline on CW transportation and prohibited it altogether. Furthermore, a provision on the transportation of CW by-products and waste would have also been desirable; unfortunately the CWC is silent on the matter.

Environmental protection and human safety obligations are an inherent part of the CW disarmament regime. However, it is difficult to define and enforce them since there is clearly a lack of norms on the matter. There is no globally accepted standard for environmental protection and human safety from international convention and the CWC only provides loose guidelines. The case of VX destruction illustrates this difficulty, among other technical and political difficulties which hinder the disarmament of CW.

B. The Costs and Delays of Chemical Weapons Disarmament

Costs and delays are the other major difficulty in CW disarmament;[762] they are directly related to issues of environmental protection and human safety. The disarmament of CW must be affordable and meet a certain destruction rate. These are essential aspects of CW disarmament; unfortunately timely disarmament at reasonable costs is a great difficulty.

1. The Costs of Chemical Weapons Disarmament

Disarmament costs relate to the destruction activities themselves and to the verification of destruction by the OPCW. The 2003 OPCW financial crisis shows that verification costs are an issue as they take up a substantial part of the organization's

[762] *SIPRI Yearbook 2003*, 684.

budget and are likely to increase.[763] However, these costs are not looked into as they concern the OPCW and its internal functioning; they do not have a direct impact on the CW destruction process.

The costs of CW destruction affect CW destruction methods and the progress of CW disarmament activities. Firstly, the investment required for a given destruction method influences its adoption. Secondly the high costs of CW destruction affect CW possessors by often keeping them from meeting their disarmament obligations, impending on compliance with the CWC obligations. Before the CWC was concluded the issue of high costs was expected; as Lohs clearly pointed out, 'destruction costs will by far outstrip the production costs'.[764]

The costs of CW destruction are enormous and all aspects of chemdemil programs are expensive. For example, the US allocation for chemical 'demilitarization' (for national programs only) for fiscal year 2002 was US$ 1,105 billion. An idle destruction facility costs US$ 1 million per week.[765] The construction of a destruction plant costs US$ 1, 5 billion,[766] regardless of design, equipment and operation.[767] CW storage for a year costs US$ 15 million.[768] The amount of funding necessary is one explanation among others for cost-related difficulties. CW disarmament requires a significant investment followed by sustained and regular funding. Unfortunately CW possessors struggle to obtain enough funding for chemical demilitarization programs.

The causes explaining insufficient funding are numerous. Early in chemdemil program, the necessary funding is not well estimated. Some states do not have a general plan of destruction before ratifying the CWC, and therefore no financial estimation of the destruction process. For example, such is the case with the late

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[763] Chapter 2, OPCW Internal Crisis; GAO General Accounting Office Report, '*Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation*', GAO-04-361, March 2004, 15-17.
[764] Lohs, n 189, 68
[765] Lois R Ember, 'Robbing Peter to Pay Paul' (2005) 83 (10), *Chemical and Engineering News*, 31-33.
[766] Mike Soraghan 'Pueblo depot gets enough funds to start cleanup'*, Denver Post* (Denver, Colo.), 30 June 2004, B.05; 'Pentagon uses depot as political football: military bureaucrats are erecting roadblocks against the planned destruction of tons of mustard gas at the US Army deport near Pueblo' *Denver Post* (Denver, Colo.), 14 January 2005, B.06; Erin Emery, 'An end and a start in Pueblo Ground was broken Saturday on a $1.6 billion plant to destroy chemical weapons. It could add 1,000 jobs, if its funding survives' *Denver Post* (Denver), 19 September 2004, C 01.
[767] Mike Soraghan 'Pueblo depot gets enough funds to start cleanup'*, Denver Post* (Denver, Colo.), 30 June 2004, B.05.
[768]'Pentagon uses depot as political football: military bureaucrats are erecting roadblocks against the planned destruction of tons of mustard gas at the US Army deport near Pueblo' *Denver Post* (Denver, Colo.), 14 January 2005, B.06

adherence of Libya to the CWC in February 2004,[769] and also with the disarmament of Russian CW.[770] Poor initial cost estimations have led to funding diversion and shortcuts during CW disarmament operations.[771] The lack of funds does not necessarily imply unwillingness on the part of governments to fund chemical demilitarization. Rather, poor cost estimates and program planning result in insufficient allocated funds.[772]

The costs of CW destruction have also increased dramatically. CW disarmament has turned out to be much more expensive than initial estimations,[773] and costs have not decreased, as it was first thought.[774] Re-evaluated cost estimates are also expected to grow further.[775]

Costs are unpredictable and hard to estimate because of unexpected difficulties leading to extra costs, for example, accidents, technical and legal problems and various mishaps increase costs.[776] The difficulties do not usually result directly in cost growth; it is the delay caused by the difficulty which in turn results in supplementary costs, usually not estimated or anticipated.[777] The lack of sufficient funding allocated

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[769] Conference of the States Parties, ninth session, decision C-9/DEC.9 *'Request by the Libyan Arab Jamahiriya to Use the Chemical Weapons Production facilities Rabta Pharmaceutical Factory 1 and Rabta Pharmaceutical Factory 2 (phase II) in Rabta, the Libyan Arab Jamahiriya for Purposes Not Prohibited Under the Chemical Weapons Convention'*(30 November 2004), 1-2; GAO General Accounting Office Report, '*Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation*', GAO-04-361, March 2004, 13.

[770] GAO General Accounting Office Report, '*Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation*', GAO-04-361, March 2004, 23-4.

[771]General Accounting Office Report, '*Chemical Weapons: Destruction Schedule Delays and Cost Growth Continue to Challenge Program Management'*, GAO-04-634T, April 2004, 5.

[772] Ibid, 3, 11; General Accounting Office Reports, '*Chemical Weapons: Destruction Schedule Delays and Cost Growth Continue to Challenge Program Management'*, GAO-04-634T, April 2004, 4, mentions the 'unfunded requirements' of the chemdemil program; '*Chemical Demilitarization: Funding Status of the Chemical Demilitarization Program*', GAO/NSIAD-99-232R, July 1999, 5-8; and, '*Army's Emergency Preparedness Program Has Financial Management Weaknesses'*, GAO/NSIAD-95-94, March 1995.

[773] General Accounting Office Reports, '*Chemical Weapons: Destruction Schedule Delays and Cost Growth Continue to Challenge Program Managemen*t', GAO-04-634T, April 2004, 5; '*Issues Related to DOD's Management*', GAO/T-NSIAD-95-185, July 1995, 3 and Annex III, 15-16 '*Appropriated, Obligated and Disbursement Data for Fiscal Years 1988 to 1995'* and *SIPRI Yearbook 1991*, 94.

[774] *SIPRI Yearbook 1991*, 525.

[775] General Accounting Office Report, '*Chemical Weapons: better Management Tools Needed to Guide DOD's Stockpile Destruction Program*', GAO-04-221T, October 2003, 7 and '*Issues Related to DOD's Management*', GAO/T-NSIAD-95-185, July 1995, 4.

[776] Ibid, 7-9 and General Accounting Office Report, '*Chemical Weapons: better Management Tools Needed to Guide DOD's Stockpile Destruction Program*', GAO-04-221T, October 2003, 4; General Accounting Office Report, '*Chemical Weapons: Destruction Schedule Delays and Cost Growth Continue to Challenge Program Management*', GAO-04-634T, April 2004, 4.

[777] General Accounting Office Report, '*Chemical Weapons: better Management Tools Needed to Guide DOD's Stockpile Destruction Program'*, GAO-04-221T, October 2003, 3-4.

to disarmament has delayed and extended destruction schedules.[778] Other financial problems include diverted funds, the failure or poor allocation of funds. Finally, the SIPRI partly attributes cost increases to the growing public awareness of the risks involved in destruction operations, as well as to the need for safety measures.[779]

The case of the Pueblo destruction site in Colorado illustrates cost-related difficulties and their consequences on the destruction process. The construction of the Pueblo destruction plant should have begun in 2005 and cost US$1, 5 billion by its completion in 2011.[780] US$150 million were expected for fiscal year 2005,[781] but was reduced to US$5 million and later increased to US$ 50 million. This funding allowed construction to begin but was insufficient to buy equipment or operate the facility.[782] Furthermore there was concern that not enough funding would be provided to complete construction.[783] Uncertain funding results from political tussles, for example over the chosen destruction method.[784] In turn, insufficient funding, along with other minor difficulties, provides the opportunity to voice grudges on political and financial decisions, and fuel public opposition to CW disarmament.

Most CW possessors suffer from funding shortage for CW destruction. International assistance attempts to support CW destruction; it plays a significant role for the progression of CW disarmament. The most important financial assistance program is the Cooperative Threat Reduction Program (CTR), created by the 1991 US Nunn-Lugar legislation. It provides financial assistance to former Soviet Union members to secure, destroy and ensure the safe transportation of their WMD.[785] CTR funds are released upon the completion of conditions by the receiving State.[786] Although there are various beneficiaries, the bulk of CTR funds are spent in Russia.[787]

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[778] Ibid, 5-6.
[779] *SIPRI Yearbook 1991,* 112.
[780] 'Pentagon uses depot as political football: military bureaucrats are erecting roadblocks against the planned destruction of tons of mustard gas at the US Army deport near Pueblo' *Denver Post* (Denver), 14 January 2005, B.06
[781] 'Ibid; Erin Emery, 'An end and a start in Pueblo Ground was broken Saturday on a $1.6 billion plant to destroy chemical weapons. It could add 1,000 jobs, if its funding survives' *Denver Post* (Denver), 19 September 2004, C 01.
[782] Ibid.
[783] Ibid.
[784] 'Pentagon uses depot as political football: military bureaucrats are erecting roadblocks against the planned destruction of tons of mustard gas at the US Army deport near Pueblo' *Denver Post* (Denver), 14 January 2005, B.06
[785] The White House, '*Safe, secure dismantlement (SSD) initiatives with Russia'*, 4 april 1993 < http.dosfan.lib.uic.edu/acda/factshee/wmd/nuclear/ctr/ssdrussi.htm > 24/09/2005.
[786] 'Nunn-Lugar Conditions' (2004) 34 (10), *Arms Control Today*, 32.
[787] Chapter 4.

International assistance for CW disarmament is also affected by the difficulties of CW disarmament. In the case of CTR assistance, the conditions for releasing and obtaining CTR funds are often not met or certified. They have been loosened or waived a number of times both to avoid destruction schedule delays and funding interruptions.[788]

International financial assistance is often necessary for the completion of CW disarmament;[789] some CW possessors rely entirely on such assistance. For example, in 2003 the CTR legislation was modified to extend to countries outside the former Soviet Union. As a consequence, Albania benefited from US$20 million of CTR funds over two years to destroy part of its CW stockpile.[790] In the case of Albania additional assistance is expected, especially since new, formerly hidden CW stockpiles have been discovered.[791]

Financial assistance to Albania was also intended to avoid the late completion of CW destruction. Albania only declared its CW stockpile in March 2003 and had little time to complete its CW destruction given the deadlines provided in the CWC.[792] It was granted an extension of its three intermediate deadlines for the destruction of its Category 1 CW stockpiles.[793] However, for Albania to complete CW destruction on time, international assistance was necessary.[794]

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[788] George W Bush, 'Presidential determination on Waiver of conditions on Obligation and Expenditure of funds for Planning, Design and construction of a chemical weapons destruction facility in Russia' (2004) 40 (49), *Weekly compilation of presidential documents* ; ACDA 1996 annual report, II Eliminating CBW <http://dosfan.lib.uic.edu/acda/reports/annual/ch2.htm > (24/09/2005); ACDA 1997 annual report, II Eliminating CBW <http://dosfan.lib.uic.edu/acda/reports/annual/chpt2.htm> (24/09/2005).

[789] 'U.S Mulls Options For Dismantling Libyan Chemical Weapons', *Defense Daily International* (2006) 7 (14), 1, and Jonathan B. Tucker and Paul F. Walker, 'A long way to go In Eliminating Chemical Weapons' *Boston Globe* (Boston), 1 May 2006, A13.

[790] Michael Nguyen 'Albania to Receive Nunn-Lugar Assistance' (2004) 34 (10), *Arms Control Today*, 41-41 ; Government Concentrates, 'US to help destroy Albanian weapons' (2004) 82 (44) *Chemical and Engineering News,* 19 ; George W Bush 'Presidential determination on Use of cooperative threat reduction funds in Albania Under section 1308 of the national defense authorization act for fiscal year 2004' (2004) 40, *Weekly compilation of presidential documents*, 2507-2508.

[791] Conference of the States Parties, '*Request by Albania for Extensions of the Intermediate Deadlines for the Destruction of its Category 1 Chemical Weapons Stockpiles*', ninth session, OPCW document C-9/DEC.8 (30 November 2004), 1-2

[792] Michael Nguyen 'Albania to Receive Nunn-Lugar Assistance' (2004) 34 (10), *Arms Control Today*, 41-41.

[793] Conference of the States Parties, '*Request by Albania for Extensions of the Intermediate Deadlines for the Destruction of its Category 1 Chemical Weapons Stockpiles*', ninth session, OPCW document C-9/DEC.8 (30 November 2004), 1-2.

[794] Michael Nguyen 'Albania to Receive Nunn-Lugar Assistance' (2004) 34 (10), *Arms Control Today*, 41-41; Government Concentrates, 'US to help destroy Albanian weapons' (2004) 82 (44) *Chemical and Engineering News,* 19.

International assistance for CW disarmament is provided via other channels, for example, the Group of Eight (G8) Global Partnership Against the Spread of Weapons and Materials of Mass Destruction,[795] dating back to June 2002. It funds projects, including disarmament projects, over a period of 10 years.[796]

The costs of CW disarmament are an issue in the CW disarmament regime; CW disarmament is clearly far more expensive than CW armament. Although this difficulty was expected,[797] the destruction of CW is financially taxing and costs only appear to increase. The costs of disarmament are not mentioned as an obligation in the CWC; CW possessors must simply give the OPCW cost estimates of the destruction of CW.[798] Some authors have suggested that the destruction of CW could be profitable, or at least result in products that can be used commercially. Unfortunately as the debate of conversion shows, there is little, if any, financial benefit from CW disarmament.[799] Other authors have argued that the benefits of disarmament are non-quantifiable and can be considered in non-monetary value.[800] Concerning CW it is also the author's belief that the benefits of CW disarmament are in terms of international security. Unfortunately the immediate expenditures required for disarmament can be daunting. Furthermore, to the author's knowledge there is no inclusive study or publication on the costs of CW disarmament and the OPCW provides no information on such costs. In the author's view although the lack of funding is only one among the causes of the difficult disarmament of CW, the author suspects, it is the most likely to make it fail, especially since costs can be linked with the delayed and late CW destruction of CW.

The question of CW disarmament costs relates directly to that of delays.[801] The cost difficulty affects the entire CW disarmament process by blocking or slowing destruction. Delays may be caused by lack of funding, and in turn delays increase costs, although more funding is no guarantee that delays will not occur. The US General Accounting Office (GAO) clearly identifies this vicious cycle between

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[795] *SIPRI Yearbook 2003*, 656-7.
[796] Ibid, 679; Lois R ember & Bette Hileman, 'Summit addresses climate change, Nonproliferation' (G-8 leaders noted seriousness of issues, but did not announce new programs' (2005) 83 (29*), Chemical and Engineering News*, 10; Nuclear Threat Initiative, Annual Report 2004, 35.
[797] *SIPRI Yearbook 1979,* 475.
[798] Verification Annex Part IV (A), para 6.
[799] Lohs, n 189, 69
[800] Susan Willett, 'Disarming the Costs and Benefits of Arms Control' (2005), 3, *Disarmament Forum,* 19-28.
[801] General Accounting Office Report, '*Chemical Weapons: better Management Tools Needed to Guide DOD's Stockpile Destruction Program*', GAO-04-221T, October 2003, 2, 6.

increasing costs and increasing delays. For example some delays in the US chemdemil program are caused by insufficient funding;[802] in turn it is believed that 'if delays persist… program costs will rise substantially' above previous estimates.[803] In another example the GAO attributes delays in the destruction schedule to funds that have been transferred because of unfunded requests in certain areas of the chemdemil program.[804]

2. The Delays Slowing the Destruction of Chemical Weapons

Delays are another significant difficulty of the disarmament of CW. CW possessors only have a limited amount of time to eliminate their CW capabilities, unfortunately there are numerous delays. As a result it appears that the largest CW possessors fail to meet their CW destruction schedules and chemdemil programs rarely go according to plans.

There are numerous explanations for the delays in CW destruction; they are closely related to other requirements of destruction methods. For example, the US fails to meet its destruction schedule because of demanding environmental requirements,[805] or funding shortfalls.[806] Other causes include technical incidents and management issues.[807] Interruptions and a slowed destruction rate result from these difficulties, which in turn postpone the entire destruction schedule.[808] Unfortunately

[802] General Accounting Office Report, '*Chemical Weapons: Destruction Schedule Delays and Cost Growth Continue to Challenge Program Management*', GAO-04-634T, April 2004, 4.
[803] Ibid, 2.
[804] Ibid, 9.
[805] General Accounting Office Reports, '*Chemical Demilitarization: Funding Status of the Chemical Demilitarization Program*', GAO/NSIAD-99-232R, July 1999, 2; '*Issues Related to DOD's Management'*, GAO/T-NSIAD-95-185, July 1995, 4-5; '*Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation*', GAO-04-361, March 2004, 11; '*Chemical Weapons: Destruction Schedule Delays and Cost Growth Continue to Challenge Program Management'*, GAO-04-634T, April 2004, 5 and '*Chemical Weapons: better Management Tools Needed to Guide DOD's Stockpile Destruction Program*', GAO-04-221T, October 2003, 4.
[806] General Accounting Office Reports, '*Chemical Weapons: better Management Tools Needed to Guide DOD's Stockpile Destruction Program*', GAO-04-221T, October 2003, 2, 4-5; '*Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation'*, GAO-04-361, March 2004, 11 and '*Army's Emergency Preparedness Program Has Financial Management Weaknesses'*, GAO/NSIAD-95-94, March 1995.
[807] General Accounting Office Reports, '*Chemical Weapons: better Management Tools Needed to Guide DOD's Stockpile Destruction Program*', GAO-04-221T, October 2003, 2, 6, 8-10 and '*Chemical Weapons: Destruction Schedule Delays and Cost Growth Continue to Challenge Program Management'*, GAO-04-634T, April 2004, 7-9.
[808] GAO General Accounting Office Report, '*Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation'*, GAO-04-361, March 2004, 11.

delays are a major difficulty because usually they cannot be anticipated and remedied.[809]

Most CW possessors experience delays in meeting their disarmament obligations. Albania, Libya, Russia and an unnamed CW possessor have requested extensions for their intermediate destruction deadlines.[810] However, some possessors do not experience delays. For example, India is the third largest CW possessor but has met its intermediate CW destruction deadlines and is expected to meet the final deadline in 2007.[811] In spite of a late start, Albania is also expected to meet its deadlines even though it declared its CW on 2003 only.[812] Libya has yet to develop a destruction plan and is expected to require an extension of the final destruction deadline.[813] The last CW possessor-which remains unnamed by the OPCW- has also experienced destruction delays due to technical difficulties, and has requested an extension of its intermediate, 45% destruction deadline.[814] Yet this state is still expected to successfully meet the final deadline in 2007.

The CWC disarmament regime could be considered successful from this perspective, since it is estimated that four out of six CW possessors will meet the final, non-extended deadline in 2007,[815] although this view is not shared by all experts.[816] However, Russia and the US are the main CW possessors and their disarmament matters most for international security. The main two possessors represent 97% of the world's total CW capability.[817] The difference between the four smaller CW possessors and the main two CW possessors can be attributed to the size

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[809] General Accounting Office Reports, '*Chemical Weapons: better Management Tools Needed to Guide DOD's Stockpile Destruction Program'*, GAO-04-221T, October 2003, 3; and '*Chemical Weapons: Destruction Schedule Delays and Cost Growth Continue to Challenge Program Managemen*t', GAO-04-634T, April 2004, 4.
[810] Note 791.
[811] *Report of the OPCW on the Implementation of the Chemical Weapons Convention in 2003, ninth Session of the Conference of the States Parties*; document C-9/5, 30 November 2004 ; GAO General Accounting Office Report, '*Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation*', GAO-04-361, March 2004, 13.
[812] GAO General Accounting Office Report, '*Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation*', GAO-04-361, March 2004, 13.
[813] Jonathan B. Tucker and Paul F. Walker, 'A long way to go In Eliminating Chemical Weapons' *Boston Globe* (Boston), 1 May 2006, A13.
[814] Ibid; Conference of the States Parties, '*Report of the OPCW on the Implementation of the Chemical Weapons Convention in 2003'*, OPCW document C-9/5, ninth session (30 November 2004), 2, 5.
[815] GAO General Accounting Office Report, '*Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation'*, GAO-04-361, March 2004, 7, 13.
[816] Jonathan B. Tucker and Paul F. Walker, 'A long way to go In Eliminating Chemical Weapons' *Boston Globe* (Boston), 1 May 2006, A13.
[817] GAO General Accounting Office Report, '*Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation*', GAO-04-361, March 2004, 7, 13.

of CW arsenals. Whether it can also be attributed to different environmental and human safety standards is, to the author's knowledge, uncertain as there is little information to base any comparison on. The two states the disarmament of which is crucial for the success of the CW disarmament regime encounter great difficulties and their CW destruction is both delayed and far behind schedule.

The consequences of these delays are twofold. Nationally, chemical destruction deadlines or 'milestones' are missed and extended, in turn causing cost growth and program revisions.[818] Delays also affect the general CW destruction schedule, which corresponds to the deadlines imposed by the CWC to destroy CW and CWPF.[819] Therefore CW possessors do not meet their CWC deadlines, and must request their extension.[820] For example, at its current destruction rate the US is not expected to meet its own national schedule and will also fail to meet the CWC intermediate deadlines.[821] It is also estimated it will not meet the extended 2012 deadline for the completion of its CW disarmament obligation.[822] Russia is not expected to complete the destruction of CW within the deadlines imposed by the CWC either.[823]

Delays in CW disarmament therefore have serious implications for the CW disarmament regime as they threaten compliance with CWC obligations. From the point of view of legal obligations, delays are a flaw in the CW disarmament regime. While costs are a national issue, delays affect compliance with the CWC deadlines; too many delays will eventually result in a direct violation of the CWC. For example today the US schedules its destruction program beyond the CWC extended final deadline.[824] On the one hand it implies realistic planning; on the other is it a 'planned' violation of the CWC obligations. Unfortunately the CWC final deadline cannot be

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[818] General Accounting Office Report, '*Chemical Weapons: better Management Tools Needed to Guide DOD's Stockpile Destruction Program*', GAO-04-221T, October 2003, 3-7.
[819] Verification Annex, Part IV (A) paras 16-17, Part V para 30.
[820] General Accounting Office Reports, '*Chemical Weapons: better Management Tools Needed to Guide DOD's Stockpile Destruction Program'*, GAO-04-221T, October 2003, 2, 7 and '*Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation*', GAO-04-361, March 2004, 7.
[821] General Accounting Office Reports, '*Chemical Weapons: better Management Tools Needed to Guide DOD's Stockpile Destruction Program'*, GAO-04-221T, October 2003, 2, and '*Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation'*, GAO-04-361, March 2004, 11.
[822] GAO General Accounting Office Report, *'Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation'*, GAO-04-361, March 2004, 7, 11.
[823] Chapter 4.
[824] General Accounting Office Report, '*Chemical Weapons: better Management Tools Needed to Guide DOD's Stockpile Destruction Program*', GAO-04-221T, October 2003, 6.

extended after 2012; furthermore the CWC is silent about sanctions or measures or the possibility to modify the extension regime.

The systematic delays in implementing the CWC disarmament obligations raise questions about the feasibility of timely CW destruction. In some cases, deadlines have been met and sometimes even beaten.[825] Unfortunately such occurrences only happened with CW possessors with small CW arsenals. Was the destruction schedule realistic for the main two CW possessors? The final deadline for the main CW possessors is extended to 2012, which is now the ultimate deadline for completion of destruction.[826] If the five-year extension of the final deadline had not been granted, CW disarmament would have had to be completed by April 2007. There is no chance that a State with a significant CW capability can meet this deadline.

The delayed implementation of the CW disarmament regime can be attributed to various reasons, namely growing environment protection, safety and costs difficulties which increased beyond expectations. However, it is difficult to say whether this could have been expected and eventually prevented.[827] Delays can also be attributed to unfeasible deadlines. One possibility is that delays were expected but that in light of the difficult yet urgent conclusion of the CWC, negotiators agreed on setting basic norms only. The adjustment of these norms could be achieved later. This theory is supported by some negotiators of the CWC, according to whom the CWC must rather be concluded soon than never.[828] Unfortunately this implies that some obligations of the CW disarmament regime are 'still-born' because they clearly cannot be met. It would equate to signing up to obligations impossible to comply with and in turn undermine the CWC authority. The delayed disarmament in the US and Russia appears to confirm this suggestion.

However, in retrospect an alternative choice to the CWC deadlines is difficult to envisage. A longer deadline might have removed the urgency of the CW disarmament issue. An undetermined or long-term deadline might diminish the urgency to deal with CW and furthermore deemphasize the goal of CW destruction. This would also justify why the final 10-year deadline is based on the entry into force

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[825] Ibid; *Report of the OPCW on the Implementation of the Chemical Weapons Convention in 2003, ninth Session of the Conference of the States Parties*; document C-9/5, 30 November 2004, 2, 4.
[826] *Report of the OPCW on the Implementation of the Chemical Weapons Convention in 2003, ninth Session of the Conference of the States Parties*; document C-9/5, 30 November 2004, 2, 4.
[827] OPCW, *Genesis and Historical Development* <http://www.opcw.org/en/CWC_History.html> as of 8 July 2005; Michie, n 223, 345-377
[828] Ledogar, n 11, 45-6.

of the Convention, as opposed to the entry into force of the CWC for the concerned State Party.

A final comment can be made on the fact that delays are not specific to disarmament obligations. The implementation of other obligations is also difficult and delayed,[829] for example, declarations on CW-activities,[830] the adoption of national laws criminalizing CW-related prohibitions, and the designation of national authorities to implement the CWC.[831] These implementation measures are met late or not at all. However, disarmament is the most pressing task of the CWC.[832]

Conclusion

A concluding comment can be made regarding the lack of information published on the details of CW disarmament, and especially from the OPCW. Information on CW destruction operations in CW possessors, but also their norms for CW disarmament, is sparse and most information published on the matter is technical.

Much secrecy remains surrounding CW disarmament, as indicated by the undisclosed information on Indian CW disarmament[833] or with the anonymity of certain CW possessors. Despite its verification activities the OPCW remains mostly silent about the CW destruction process. As a result, an assessment of the difficulties of CW disarmament is hindered by the lack of information.

The experience of CW disarmament illustrates the numerous difficulties that can be expected of any kind of arms disposal. The disarmament of CW has turned out to be much more difficult than what was expected. Furthermore, the environmental and safety obligations and the deadlines envisaged in the CWC appear unrealistic, or else the completion of some conditions may well compromise the fulfilment of other. The obvious discrepancy between the CW disarmament regime and the difficulties experienced has shed doubt on the feasibility of disarmament according to the CWC disarmament obligations.

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[829] GAO General Accounting Office Report, '*Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation'*, GAO-04-361, March 2004, 2.
[830] Ibid, 5, 13.
[831] Ibid, 5, 13-14 ; *Report of the OPCW on the Implementation of the Chemical Weapons Convention in 2003, ninth Session of the Conference of the States Parties*; document C-9/5, 30 November 2004, 1, 4. Chemical Weapons Convention art VII; GAO General Accounting Office Report, '*Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation*', GAO-04-361, March 2004, 2, 5, 7, 13.
[832] Ledogar, n 11, 51-3.
[833] GAO General Accounting Office Report, '*Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation'*, GAO-04-361, March 2004, 13.

The gap between the CWC disarmament regime and the practical difficulties of CW disarmament is expressed on many levels. It is firstly expressed with the sources of information on CW disarmament which are technical and remote from the primary sources of the CW disarmament regime. Secondly, many difficulties of CW disarmament have been overlooked during the CWC negotiations. These difficulties also show that some theoretical aspects of the CW disarmament regime are unrealistic and unfeasible. In that respect the CW disarmament regime of the CWC appears to be insufficient from an effective disarmament approach. Finally the difficulties of CW disarmament point to the question of whether the CWC is adequate instrument to achieve effective disarmament.

Before these questions are looked into with the evolution of the CW disarmament regime in the current international security environment, a case study of Russian CW disarmament is examined to illustrate the difficulties of CW disarmament and highlight weaknesses of the CW disarmament regime.

Chapter 4: The disarmament of Chemical Weapons Disarmament in Russia

Introduction

Chemical demilitarization in Russia provides a good case study for the difficulties of the CW disarmament regime. Russia stands out because it is the largest CW possessor among CWC member states. It also encounters most difficulties in implementing its CW disarmament obligations. Finally, the Russian CW arsenal is the most threatening to international security.

This case study should be seen as a continuation of the difficulties of CW disarmament examined in the previous chapter.[834] The Russian situation illustrates both the general difficulties of CW disarmament and specific problems encountered by a country with limited means for disarmament.

The scope of Russian CW disarmament difficulties extends further than the destruction of CW stockpiles; other related difficulties include the matters of CW storage, proliferation, terrorism, but also more general economic, environmental, social and political questions affecting CW disarmament in Russia. In that respect the disarmament of Russian CW is unique.

This case study aims at highlighting the answers provided in the CW disarmament regime to these difficulties. Russian CW require a significant disarmament effort; in that regard they present a great challenge for the CW disarmament regime. The two questions raised by this case study are the feasibility of CW disarmament in compliance with the legal obligations of the CWC and whether disarmament is the appropriate solution to the threat from Russian CW. In turn these raise questions about the participation to and modification of the existing CW disarmament regime. This case study further highlights the gap between the legal disarmament obligations and their application. Firstly the specific CW disarmament situation of Russia is examined, followed by the difficulties affecting the disarmament of CW.

[834] Chapter 3, the Difficulties of Chemical Weapons Disarmament.

Section 1: The Soviet chemical legacy

A. The Soviet legacy and the imposing Russian chemical weapons arsenal

Russia has taken up most of the Soviet treaty obligations following the collapse of the Soviet Union (SU) in 1991.[835] An agreement organizes the succession between the two States; it states that Russia is the main legal successor for Soviet obligations and therefore must meet Soviet disarmament commitments. As the former SU's successor in international obligations and having inherited its entire CW arsenal, Russia is faced with a significant CW legacy and with an enormous disarmament task.

Russia has reiterated its willingness to follow Soviet efforts in the area of arms control and disarmament.[836] In the area of CW it pursued negotiations towards a multilateral ban on CW, and undertook to abide by existing bilateral obligations. [837] However, the transition was not entirely smooth due to the troubled context. Disagreements which existed between the US and the Former SU also blocked negotiations between the US and Russia and it took Russia another two years to complete the negotiation of the CWC.

Russia has been left with the entire Soviet CW arsenal located on its territory,[838] which is the world's largest CW arsenal.[839] It includes a widespread production capability and a vast stockpile: 40 000 metric tons of CW agents have been declared to the OPCW, stored at seven sites spread across the Russian territory.[840] The stockpile is composed of 32 000 metric tons of nerve agents stored at 5 sites;[841] the remainder consists of blistering agents stored at two sites.[842] Most of the

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[835] Goldblat, n 4, 249.
[836] *Excerpt from a Message from the President of the Russian Federation, Boris Yelstin, to the Secretary-General of the United Nations*, (1992), UN Document A/47/77-S/23486 and Corr.1.
[837] Ibid.
[838] Ibid; Federation of American Scientists, *Chemical Weapons* <http://www.fas.org/nuke/guide/russia/cbw.htm> at 31 January 2006.
[839] Ibid.
[840] Russian Munitions Agency, *Facilities of CW Stockpiling and Destruction* <http://www.munition.gov.ru/eng/objhran.html> at 31 January 2006.
[841] Foreign Affairs Canada, *Chemical Weapons Destruction* (2005) <http://www.dfait-maeci.gc.ca/foreign_policy/global_partnership> at 31 January 2006 and Federation of American Scientists, *Chemical Weapons* <http://www.fas.org/nuke/guide/russia/cbw.htm> at 31 January 2006.
[842] Ibid ; Russian Munitions Agency, *Facilities of CW Stockpiling and Destruction* <http://www.munition.gov.ru/eng/objhran.html> at 31 January 2006.

nerve agents are filled in munitions (ready for use as CW); the remainder is stored in bulk containers.[843]

Russia has also inherited a large quantity of defectively destroyed CW, which means there is another 'dormant' CW arsenal. There is no precise knowledge of how many CW have been disposed of using early destruction methods, or of the threat it might represent for the environment and the population.[844] Beyond the CW arsenal, the Soviet chemical legacy comprises a 'human legacy', the collapse of the SU having left hundreds of weapons scientists unemployed.[845]

The Soviet, now Russian, chemical arsenal remains a source of great suspicion. The quantity of CW, the development and possession of binary CW and the cessation of CW production are lingering issues.

The numerous estimates about the quantity of CW produced by the former SU and now owned by Russia do not concur. The estimated quantities of CW inherited by Russia vary from the declared 40 000 metric tons of chemical agents to 300 000 tons and it is sometimes estimated that over 200 000 tons still exist.[846] It would mean Russia has not provided a complete declaration of its CW capability, which is a common opinion.[847] There is much speculation as to whether Russia has declared the totality of its CW capability and about the quantity of CW it effectively owns.[848] The size of the former Soviet stockpile is difficult to establish.

The SU has also developed binary CW, which also concern the international community.[849] Binary CW are munitions composed of separate agents which become a CW when they come together upon use. They imply significant technological progress in chemical warfare.[850] They are an important proliferation risk since it is

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[843] Ibid.
[844] Derek Averre and Igor Khripunov, 'Chemical Weapons Disposal: Russia Tries Again' (2001) 57 (5), *Bulletin of the Atomic Scientists*, 57-63; Pandy R Sinish and Joel A Vilensky, 'WMDs in our Backyard' (2005) 19 (4), *Earth Island Journal,* 31-34 and Murray Feshbach, *Ecological Disaster: Cleaning Up the Hidden Legacy of the Soviet Regime' (*1995), 50-1.
[845] General Accounting Office Report, '*Observations on U.S Threat Reduction and Nonproliferation Programs in Russia*', GAO-03-526T, March 2003, 2; Foreign Affairs Canada, *Employment of Former Weapons Scientists* (2005) <http://www.dfait-maeci.gc.ca/foreign_policy/global_partnership/ >at 31 January 2006 and General Accounting Office Testimony, 'Weapons of Mass Destruction: U.S Efforts to Reduce Threats from the Former Soviet Union'. GAO/T-NSIAD/RCED-00-119, March 2000, 3
[846] Julian Perry Robinson, Chemical and Biological Warfare' in *SIPRI Findings*, n 2, 185 ; Feshbach, n 832, 64 and Ooms, n 44, 124.
[847] Derek Averre and Igor Khripunov, 'Chemical Weapons Disposal: Russia Tries Again' (2001) 57 (5), *Bulletin of the Atomic Scientists*, 57-63.
[848] Feshbach, n 832, 65 and Bernier, n 192, 84-104.
[849] Myrdal, n 46, 286-290, on the development of binary CW and their consequences on efforts to negotiate a verifiable ban on CW.
[850] Ibid, 290.

extremely difficult, if not impossible, to verify and detect them.[851] Russia is suspected of having developed and produced binary CW and not declared them.[852]

Finally there are suspicions that Russia has not ceased to produce CW and especially binary CW.[853] However, in the author's view there is hardly any support for this, both in terms of evidence and of justification or motivations. Russia has officially renounced the production of CW in 1987, and at the same time expressed the intention not to replace, and also to destroy its declared CW arsenal.[854] In addition, with the prohibition of the use of CW and because of their negligible military value, no State has an interest in producing or retaining the capability to produce CW. Finally Russia has the largest CW arsenal and has no reason to seek to acquire CW, especially in light of the difficulties it encounters to disarm CW.

Unfortunately doubts and speculation about the Russian CW arsenal have drawbacks. If Russia has not declared its entire CW stockpile, it is in direct violation of the CWC. It suggests non-compliance with its declaration obligations and also the concealment of CW with an unknown agenda or purpose. However, if the declared amount of CW corresponds to the reality, these allegations show a lack of confidence both between CWC member states and in the ability of the OPCW to detect violators of the convention.[855]

It is the author's belief that the contradictory estimates about the Russian CW arsenal call for caution, and that suspicion about the former SU chemical capability must be considered in light of other factors.

Russia has inherited the Soviet culture of secrecy in military, and especially CW matters.[856] In light of its traditional reluctance to share information on its weapons capabilities, little if any information on military matters is disclosed and such suspicions are likely.

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[851] Ibid 287-8; Derek Averre and Igor Khripunov, 'Chemical Weapons Disposal: Russia Tries Again' (2001) 57 (5), *Bulletin of the Atomic Scientists*, 57-63.
[852] Bernier, n 192, 84-104; Feshbach, n 832, 64; Federation of American Scientists, *Chemical Weapons* <http://www.fas.org/nuke/guide/russia/cbw.htm> at 31 January 2006. Russia is suspected to have developed and tested a new generation of binary CW, and that therefore it has not declared its entire CW stockpile.
[853] Federation of American Scientists, *Chemical Weapons* <http://www.fas.org/nuke/guide/russia/cbw.htm> at 31 January 2006 and Bernier, n 192, 84-104.
[854] Ibid; Goldblat, n 4, 97.
[855] Lisa Tabassi, 'International Symposium: cooperation and Legal Assistance for the Effective Implementation of International Agreements', The Hague, 7-9 February 2001.
[856] Arthur J Alexander, 'Decision-Making in Soviet Weapons Procurement' Adelphi Papers 147-148, 1978-79.

There was very little knowledge about earlier Russian CW capabilities unless information was submitted voluntarily (mostly in the context of bilateral talks).[857] For example, during the CWC negotiations Russia's firm position opposed intrusive international inspections and declaration of its CW capabilities.[858] Other CW possessors had guessed that the Soviet CW capability was superior to their own.[859]

It is also likely no definite estimate of the Russian CW arsenal can be done and that if it were it would not be admitted.[860] Divergences and doubts are likely to occur between any State's declaration and other States' assumptions about its CW capability. Furthermore there is no guarantee that information disclosed on the Russian CW arsenal is reliable and complete, hence the lingering doubts about the truthfulness of its declarations.[861] However, a comment can be made about the fact that such secrecy is not specific to Russia or to CW. Few CW possessors are open regarding their CW capability.[862] For example, the exact number of CW possessors remains uncertain.[863]

The example of Russia also highlights a general verification issue, namely the belief that a perfect or foolproof verification system is unlikely,[864] and that the CWC declaration regime has loopholes.[865] Although declarations are a vital part of the verification regime,[866] a level of uncertainty must be accepted. In the author's view remaining doubts should not undermine the importance of declarations, but their accuracy may be tempered. An evidently inaccurate or incomplete declaration of CW possessors' capabilities should not be acceptable, yet it is difficult to say if it is a substantial violation of the CWC or not. It would depend on how much has been dissimulated, for what purpose and with what consequence. For example, it is possible that Russia itself was not aware of the extent of its CW capabilities. The

[857] Julian Perry Robinson, 'Chemical Warfare Capabilities of the Warsaw and North Atlantic Treaty Organizations: an Overview from Open Sources' in SIPRI (ed) *Chemical Weapons: Destruction and Conversion* (1980) 9, 10, 28-30.
[858] Trapp, 'Geneva Negotiations on Chemical Weapons' in *SIPRI Findings*, n 131, 345.
[859] Julian Perry Robinson, Chemical Warfare Capabilities' in *SIPRI Findings*, n 846, 39-40.
[860] Ooms, n 44, 123, 125.
[861] Feshbach, n 832, 4, 7 and Ooms, n 44, 123, 124.
[862] Julian Perry Robinson, Chemical and Biological Warfare' in *SIPRI Findings*, n 2, 185.
[863] Ibid.
[864] Trapp, 'Geneva Negotiations on Chemical Weapons' in *SIPRI Findings*, n 131, 350.
[865] Krutzsch and Trapp, n 332.
[866] Myrdal, n 46.

dismay and surprise expressed by Gorbatchev over the extent of the Russian CW arsenal concurs with this.[867]

In turn the example of Russia points to the issue of the ability to detect and respond to incomplete declarations, and casts shadows on the capacity of the OPCW to enforce CWC obligations. What can the OPCW do if a false declaration has been made? It may request clarifications, but in the author's opinion the most obvious answer lies with the mechanism of challenge inspection.[868] This mechanism should be used in case of suspicions about a state's CW capability, but also in cases of suspected non-compliance with any CWC obligations.[869] In the author's opinion without such clarification, doubts about the full extent of CW capabilities may weaken the benefits of disarmament. However, this issue is not specific to CW, which may actually benefit from more openness and cooperation than any other WMD.[870] Today Russia is left with a significant chemical legacy the extent and contents of which are not fully known. Such a large CW capability implies a great disarmament task ahead; it also remains a threat in many respects.

B. The threats related to the Russian chemical weapons arsenal

The Soviet chemical legacy is a worrying national and international security issue because of the characteristics of the Russian CW arsenal and because of other aspects of the chemical warfare legacy, namely the human legacy. The threats related to the Russian CW arsenal both complicate the disarmament of CW and at the same time stress the necessity and urgency of achieving it.

1. The characteristics of the arsenal: unsafe storage and unsecured stockpiles

The condition and characteristics of the Russian CW arsenal cause concern. It has suffered from the obsolescence and neglect of many post-soviet era structures. CW storage facilities (CWSF) are old, mostly located in remote areas of the Russian territory and largely uncared for.[871] The quality of the storage itself is poor.

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[867] *SIPRI Yearbook 1991*, 100.
[868] Chemical Weapons Convention art 9 paras 8-25.
[869] Ibid, para 8.
[870] Alex Rodriguez, 'NATO: Russia Resisting Efforts to Secure WMD', *Knight Ridder Tribune Business News* (Washington), 22 December 2005, 1; GAO.
[871] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16.

Unsafe storage is dangerous because of leaking munitions. These create an environmental and health hazard to the local population (risk of pollution and contamination).[872] They increase the difficulties of CW handling, destruction and eventual transportation.[873] They are also a supplementary hazard for the workers involved in disarmament operations.

The CWC allows CW possessors to move munitions or make modifications at CWSF for the purpose of safe storage.[874] It is not known whether Russia has done such maintenance but it appears unlikely.

Another characteristic of the Russian CW arsenal is its unsecured stockpiles. Security at the storage sites is lacking (in the buildings and in the surrounding perimeter) with insufficient surveillance.[875] Finally the composition of the Russia CW arsenal (type of munitions and agents), even though it is not threatening in itself, greatly complicates the disarmament process. [876]

2. The chemical weapons proliferation threat

Unsecured CW stockpiles are the cause of the main concern regarding the Russian CW arsenal.[877] Russian CW are particularly vulnerable to theft or diversion and in that regard constitute a global proliferation issue.[878] Unsecured CW storage means that agents and munitions are easily obtainable by whoever intends to threaten and, or, use them.

The current preoccupation is acquisition of CW by terrorists or States of concern.[879] It is corroborated with the belief that CW are a choice weapon for terrorists, and with the fact that they are more easily stolen than produced.[880] These concerns create an urgent need to remove these threats by destroying CW. In the

[872] Leonov and Sheluchenko, n 589, 94 ; Feshbach, n 832, and Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16.
[873] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16.
[874] Verification Annex, Part V paras 15-17 'Technical maintenance of chemical weapons production facilities prior to destruction'
[875] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16.
[876] Leonov and Sheluchenko, n 589, 94, 95.
[877] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-2; Feshbach, n 832, 66.
[878] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16; Pogorely, n 178, 79-98 Feshbach, n 832, 95.
[879] Andrew O'Neil, 'Terrorist Use of Weapons of Mass Destruction: How Serious is the Threat?' (2003) 57 (1), *Australian Journal of International Affairs*, 99-112.
[880] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16 ; Pogorely, n 178, 79-98; see also Chapter 5.

author's view these threats should be seen as an incentive to pursue the disarmament of CW.

3. The responses to the chemical weapons proliferation threat

The proliferation of unsecured Russian CW is seen under different lights and different responses are envisaged; disarmament is only one of the responses but it is one of the choice solutions.

The U.S perception of the Russian CW threat depends on its national security interests.[881] It considers small-size, light nerve agent munitions to be the type of weapon most vulnerable to proliferation and to terrorist use, and therefore the most important threat to its security.[882] This opinion is shared by other states.[883]

The Russian perception of the CW threat varies according to the central government and the regions and local communities. From the government's point of view, Russian CW must not be allowed to affect national security interests.[884] They must not be available to groups or factions threatening Russian security. Furthermore CW themselves must not threaten the safety of the Russian population and environment. This latter preoccupation is shared by the regions and the local population potentially affected by the proximity of CW; it directly influences the disarmament of CW.[885]

According to the perception of the threat different responses are envisaged. The U.S response to the CW threat focuses on non-proliferation and disarmament. It results in financial and technical assistance to Russia through threat reduction or non-proliferation programs. The best part of the assistance is directed at not letting Russian CW fall into wrong hands. Therefore the U.S favours securing CW stockpiles and storage sites, a strategy meant to address 'external threats'.[886] Out of five CWSF storing nerve agents, the two housing small munitions have been the object of U.S

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[881] General Accounting Office Report, 'Additional Russian Cooperation Needed to Facilitate U.S Efforts to Improve Security as Russian Sites', GAO-03-482, March 2003.
[882] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16.
[883] Canada, Foreign Affairs Canada, *Chemical Weapons Destruction* (2005) <http://www.dfait-maeci.gc.ca/foreign_policy/global_partnership> at 31 January 2006.
[884] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16.
[885] Lois R Ember, 'The Shchuch'ye Dilemma' (2005) 83 (45), *Chemical and Engineering News,* 19-24.
[886] General Accounting Office Report, 'Additional Russian Cooperation Needed to Facilitate U.S Efforts to Improve Security as Russian Sites', GAO-03-482, March 2003, 10, 58.

assistance, [887] and of other states'.[888] A reassessment of the US assistance in 2003 revealed that efforts are limited to securing small munitions and need not extend to other nerve agent storage sites. [889] The justification is that heavy munitions and CW agents stored in bulk are unlikely to be stolen or diverted and do not pose a threat justifying securing efforts.[890]

The CW threat is also remedied with assistance in the construction of a CWDF at Shchuch'ye to destroy Russia's nerve agent stockpile. This both meets U.S security interests and corresponds to the CWC disarmament obligations. It also agrees with Russian's perception of the threat and with its spending priorities.

The U.S approach of securing CW stockpiles instead of favouring the completion of the CWDF is justified given the pace and difficulties of Russian CW disarmament.[891] Also, because most Russian nerve agents are unsecured and vulnerable, securing them until disarmament is completed is a sensible effort.[892] Securing CW is an immediate, although partial, solution to the CW proliferation threat and addresses the US' own security concerns. Russia consents with U.S efforts at securing CW yet they do not correspond to Russian disarmament objectives.[893]

Russia has a different perception of the threat posed by its stored CW. While it shares most of the U.S proliferation concerns,[894] the two countries differ on the means to ensure security from that threat. The Russian government favours the destruction of CW to remedy the CW threat. It maintains that in the long run, its security from CW is ensured by their destruction.[895] This approach also corresponds to the objectives of CW disarmament; only definitive, irreversible and complete destruction of CW effectively deals with the CW threat.

The matter of securing storage or destructing CW raises the question of how best to ensure security from the CW threat and about the role of disarmament in that matter. In Russia securing CW stockpiles as an alternative to disarming them is

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[887] Ibid, 58-59
[888] Foreign Affairs Canada, *Chemical Weapons Destruction* (2005) <http://www.dfait-maeci.gc.ca/foreign_policy/global_partnership> at 31 January 2006.
[889] General Accounting Office Report, 'Additional Russian Cooperation Needed to Facilitate U.S Efforts to Improve Security as Russian Sites', GAO-03-482, March 2003, 79.
[890] Ibid.
[891] Ibid.
[892] Ibid, 11.
[893] Ibid.
[894] Russian Munitions Agency, *Chemical Terrorism* (2003), <http://www.munition.gov.ru/eng/chmter.htm> at 31 January 2006.
[895] Ibid, 63.

considered. It raises the difficult choice of whether efforts to secure CW stockpiles should be pursued instead or perhaps to the detriment of destroying stockpiles.

Securing stockpiles is a quick and effective way to deal with the CW threat; it curbs and prevents proliferation and to a certain extent reduces this threat. Unfortunately it is not a permanent solution and does not fully guarantee security from the threat of theft, diversion and misuse of CW.[896] Furthermore it fails to deal with the threats related to on-site storage.

A drawback of focusing on securing CW is that it becomes a permanent solution. If secured CW are deemed sufficient to ensure safety, CW destruction may be slowed, postponed indefinitely and never take place. Yet secure CW stockpiles only partly resolve the immediate threat but not the global, long-term security issues. In that respect efforts to secure CW stockpiles, unless corroborated with disarmament efforts, contradict and challenge the basic consensus of CW disarmament according to which there is no safety from CW as long as they exist. Finally since the CWC defines disarmament as an irreversible process, securing CW for an indefinite time instead of disarming them appears contrary to the aims of the CW disarmament regime; it would undermine the authority of the CWC.

In the author's view in Russia efforts must stay focused on disarmament. It offers a permanent, definitive and credible solution to the CW threat and corresponds to the implementation of and compliance with disarmament obligations under the CWC. Ultimately, if CW are disarmed, it is not necessary to invest in securing CW.

Yet a drawback of disarmament without securing stockpiles is that unsecured CW stockpiles remain vulnerable to theft or diversion. In that respect disarmament may be seen as maintaining or increasing the risk of CW proliferation. Although disarmament ends the CW threat, it is a lengthy and costly undertaking, especially in the case of Russia.

From an international security perspective these issues underline the overlap between disarmament and non-proliferation efforts. In theory these efforts do not exclude or cancel one another, on the contrary they are complementary and seek similar security goals. However, there are financial and political factors involved. The debate between securing CW stockpiles over favouring disarmament implies a choice between the two types of measures, since both are costly and time-consuming. As the

[896] Chapter 3, the debate opposing CW transportation to on-site storage.

debate shows, these efforts compete in terms of financial and political support.[897] Even though a choice between securing or disarming stockpiles has not been stated in such terms so far by the US, this question should not be ignored, it. With the increasing financial difficulties and delays of CW disarmament such a choice is probable.

Regardless of the different approaches to the Russian CW threat, the destruction obligation under the CWC remains unchanged and Russia must proceed with its disarmament task. The CWC allows CW possessors to secure their stockpiles yet obliges the destruction of CW. Therefore it appears that measures securing CW storage are intended as a temporary and not a permanent solution to the CW threat. It is the author's belief that the disarmament of CW should not be doubted or questioned as the primary endeavour of the CWC and as the only solution to the CW threat.

4. The environmental and public health threats from chemical weapons.

Another aspect of the CW threat relates to human health and environmental concerns caused by the proximity of CW. Although this is a localized threat and not a global security preoccupation, it cannot be ignored and has an impact on CW disarmament efforts. Ecologist Murray Feshbach qualifies the health and environmental legacy caused by hazardous materials near populations as an ecological disaster and believes that it affects the long-term development of Russia.[898] Although the ecological aspects of CW in Russia are beyond the scope of this study, this threat affects the population living near CWSF, planned CWDF and on the CW transit routes.[899]

Unfortunately the environmental and health aspects of the threat are uncertain. There is no exact knowledge about the long-term consequences of CW destruction, and environmentally safe methods are hard to find.[900] It is possible that disarmament may cause more harm to the environment and population than CW storage does. Yet the proximity of CWSF and the dangers of CW storage are also a concern.[901]

Because of this threat in Russia the public is afraid that the disarmament of CW is as harmful as their prolonged but undisturbed storage. However, this can partly

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[897] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 4.
[898] Feshbach, n 832, 8-17, 65-6.
[899] Lois R Ember, 'The Shchuch'ye Dilemma' (2005) 83 (45), *Chemical and Engineering News,* 19-24.
[900] Ibid ; David E Powell, 'Putin, Demography, Health, and the Environment' in Dale R Herspring (ed) *Putin's Russia* (2005), 103.
[901] Feshbach, n 832, 65-6; Powell, n 900, 102.

be attributed to a lack of knowledge or of information on the environmental and health aspects of CW.[902] This uncertainty is reflected in the indecision of the Russian population on issues such as transportation and destruction.[903] It is also reflected in the suggestion to postpone CW destruction until a suitable method is found.[904] The population feels equally threatened by the proximity of CWSF and by CW destruction and transportation. In other words, all choices are poor and the least harmful solution is preferred.

5. The disarmament task relating to defectively destroyed chemical weapons in Russia

The legacy of defectively destroyed CW in Russia is another aspect of the CW threat; it relates directly to the environmental and health threat. Sea-dumped and buried CW result in environmental and human health hazards.

Like other CW possessors, the former SU has used early destruction methods abundantly to dispose of old CW, especially following World War II. The former SU disposed of CW in the North, Barents, Baltic and Kara seas and buried CW in its territory.[905] Sea-dumping and burial were the main methods and left a significant legacy.[906]

Firstly, there is no precise information on how much CW were produced and disposed of and a precise account appears impossible. [907] It is estimated that Russia disposed of hundreds of thousands of tons of CW by dumping and burial, its own and that of other states, namely CW captured from or discarded by Germany.[908] Furthermore other states have dumped CW in Russian seas, and Russia buried CW in other states' territories.[909]

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[902] Russian Munitions Agency, *Implementation Problems of the CW Convention* (2003), <http://www.munition.gov.ru/eng/prbc3.html> at 31 January 2006.
[903] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16; SIPRI *Yearbook of World Armaments and Disarmament 1991*, 111.
[904] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16.
[905] Feshbach, n 832, 50-1; Pandy R Sinish and Joel A Vilensky, 'WMDs in our Backyard' (2005) 19 (4), *Earth Island Journal,* 31-34 ; Ad Hoc Working Group on Chemical Munitions (CHEMU), *Report on Chemical Munitions Dumped in the Baltic Sea*, January 1994 to the 15th meeting of the Helsinki Commission (HELCOM).
[906] *SIPRI Yearbook 1991*, 100.
[907] Feshbach, n 832, 51; Derek Averre and Igor Khripunov, 'Chemical Weapons Disposal: Russia Tries Again' (2001) 57 (5), *Bulletin of the Atomic Scientists*, 57-63.
[908] Powell, n 900, 102.
[909] Feshbach, n 832, 51.

Secondly, defectively destroyed CW are both hazardous and spoil resources, resulting in a public health disaster with generations of sick people and genetic diseases, long-term pollution with unknown effects, and numerous unsafe, contaminated areas unlikely to be developed.[910] These chemicals are a threat to the environment and to people's health.[911] However, defectively destroyed CW are only one among many causes for what has been called by Powell the 'ecocide' in Russia.[912] Nuclear waste, reckless dumping of industrial chemicals are other causes.[913] It can be presumed by extension, that unsafe CW storage creates similar hazards.

This legacy creates difficulties for the CW disarmament task as it requires a significant recovery and disarmament effort as well as adequate destruction methods. Unfortunately, to the author's knowledge, hardly any information is provided on the disarmament of defectively destroyed CW in Russia.

6. The human legacy from the former Soviet Union

Another aspect of the CW threat comes from the 'human' legacy inherited from the SU, with thousands of former scientists with the knowledge and expertise of WMD.[914] Like CW, the inherited and often idle human expertise is also subject to diversion; it can be 'bought' by states or organizations.[915] Acquisition of chemical warfare knowledge through this human legacy is mostly a proliferation matter. The threat from former CW scientists indirectly relates to disarmament since it corresponds to the ability to produce CW, not the CW themselves.

This threat cannot be remedied with international arms control and disarmament measures. It is mostly dealt with through international threat reduction and non-proliferation programmes providing financial assistance.[916] These programmes employ scientists for peaceful, civilian research projects.[917] However, in the author's opinion, although such measures complete and concur with disarmament efforts they tax funding which could be spent on CW destruction. Finally, as the Iraqi

[910] Ibid.
[911] Powell, n 900, 102.
[912] Ibid, 95.
[913] Ibid, 94-105.
[914] Pogorely, n 178, 79-85.
[915] Dany Shoham, 'Image vs. Reality of Iranian Chemical and Biological Weapons' (2005) 18 (1) *International Journal of Intelligence and Counterintelligence* 89.
[916] Ibid, 91.
[917] General Accounting Office Report, '*Observations on U.S Threat Reduction and Nonproliferation Programs in Russia*', GAO-03-526T, March 2003, 4-5.

experience with CW disarmament shows, scientific expertise with chemical warfare could be diverted to benefit disarmament efforts.[918]

Section 2: Russian chemical disarmament efforts

A. Russian chemical weapons disarmament obligations

Russia must destroy its entire CW capability (arsenal and production capability) as a result of its obligations under the CWC, yet its disarmament efforts began well before the CWC, with bilateral efforts.[919] Multilateral and bilateral disarmament obligations are quite similar; they require the declaration of CW, a plan for their destruction and the obligation of environmental protection and human safety. Bilateral disarmament efforts also include verification and deadlines.

1. The bilateral chemical weapons disarmament regime

The elimination of former Soviet CW was pursued on multiple levels;[920] bilateral negotiations between the US and the SU were undertaken in parallel with the CWC negotiations at the CD.[921] Russia succeeded the former SU in bilateral relations but unfortunately these did not result in legally-binding obligations. Yet the progress made in the bilateral context, especially in the areas of inspection and destruction technologies has influenced the CWC and helped Russian CW disarmament. It is worth examining these bilateral efforts as they continue to contribute to the disarmament of CW in Russia.

The main bilateral instruments on CW are the 1989 Wyoming Memorandum of Understanding (M.O.U) and the 1990 Bilateral Destruction Agreement.[922] The M.O.U intends to build confidence between the two States and contribute to the conclusion of a multilateral CW convention.[923] It has two implementation phases, and calls for exchanges of data and international visits at CW facilities. The 1990 Bilateral Destruction Agreement is a non-proliferation and disarmament instrument. Its main provisions are the cessation of CW production and the reduction of the US and SU's

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[918] Gee, n 29, 83-4.
[919] Goldblat, n 4, 100; Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16.
[920] Goldblat, n 4, 100.
[921] *SIPRI Yearbook 1991*, 514-9.
[922] 1989 *Wyoming Memorandum of Understanding between USA and USSR*; *Bilateral Destruction Agreement* and *SIPRI Yearbook 2003*, 657.
[923] Arms Control and Disarmament Agency, Annual Report, 'Adherence To and Compliance With Arms Control Agreements', (1996) and *SIPRI Yearbook 1991,* 514.

CW stockpiles to 5000 tons, using an irreversible destruction process. The time-frame for destruction is 10 years, with intermediate deadlines. [924]

The M.O.U and the Bilateral Destruction Agreement are corroborated with implementing agreements and annexes.[925] Other, related instruments on CW prohibition and disarmament impose specific implementation measures.[926] Some of these instruments provide for technical cooperation between the two countries, in particular regarding destruction technologies.[927]

The outcome of bilateral efforts is both positive and disappointing at the same time. In some areas, progress made in the bilateral context has been significant and useful for CW disarmament, and has helped the conclusion of the CWC. The Bilateral Destruction Agreement largely influenced the CWC. Important progress was made in technical matters, especially destruction technologies and verification. Intrusive inspections, data exchange and reciprocal visits between the US and SU heavily influenced the CWC's verification regime.[928] Politically, bilateral efforts were important because they reflected the will of the main two CW possessors to disarm CW. Progress at the multilateral level was possible because issues were unlocked bilaterally. Bilateral efforts were also a political input to multilateral negotiations; for example, the main two possessors reduced the deterrent interest of CW before the conclusion of the CWC was made possible.[929] Along with the support for a global CW ban, this built confidence in a global convention. In that respect bilateral efforts directly contributed to the current CW disarmament regime.

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[924] Chapter 2 on bilateral sources of chemical weapons disarmament.

[925] Arms Control and Disarmament Agency, *Understanding Between the Government of the U.S.A and the Government of the Russian Federation on Measures for the Preparation and Implementation of the Second Phase of the Wyoming M.O.U*, dated 23, September 1989 and annexes to the Memorandum were signed between the parties, including the *Protocol of Updated Provisions Relating to the Agreement Between the USA and the USSR on Destruction and Non-Production of Chemical Weapons and on Measures to Facilitate the Multilateral Convention on Banning Chemical Weapons*, agreed on in Geneva, 26 march 1993.

[926] *US-Soviet Joint Statement on Proliferation*, agreed on 12 June 1990, Conference on Disarmament Document CD/1001; *SIPRI Yearbook 1991*, 517.

[927] *Agreement Between the USA and Russia Concerning the Safe and Secure Transportation, Storage and Destruction of Weapons and the Prevention of Weapons Proliferation*, signed on 17 June 1992 ('the Weapons Destruction and Non-Proliferation Agreement'), Conference on Disarmament Doc CD/1162; Goldblat, n 4, 107, 681-3; The White House, 'Safe, Secure Dismantlement (SSD) Initiatives with Russia', 4 April 1993, < http://dosfan.lib.uic.edu/acda/factshee/wmd/nuclear/ctr/ssdrussi.htm > at 24 September 2005, 1 and Kenneth Luongo and William Hoehn, 'An Ounce of Prevention' (2005) 61 (2), *Bulletin of the Atomic Scientists*, 28-35.

[928] *SIPRI Yearbook 1991*, 514-5; Federation of American Scientists, *Chemical Weapons* <http://www.fas.org/nuke/guide/russia/cbw.htm> at 31 January 2006.

[929] Bastanov, n 128, 33.

CWC obligations are largely inspired by and similar to that of bilateral instruments. In spite of the debate at the CD about the benefits or losses from bilateral efforts many CWC obligations would not have been reached without the gains from bilateral work. Overall, bilateral efforts contributed to CW disarmament by giving the US and SU a head-start in technical matters related to CW disarmament and by resolving politically sensitive issues. However, bilateral instruments stopped short of being a success. If success is based on the creation of a legal norm then bilateral efforts failed since the Bilateral Destruction Agreement was not ratified by either state party in spite of a simplified ratification procedure,[930] and therefore is not legally binding. From a result-based perspective, although bilateral efforts contributed to the current CW disarmament regime, they did not result in encouraging CW disarmament results.

2. The bilateral-multilateral relationship

With the CWC in force, bilateral instruments have no impact on the disarmament process. The CWC has replaced bilateral commitments.[931] However, the lengthy and delayed ratification of the CWC highlights the importance of bilateral efforts. It suggests that bilateral instruments can be an alternative to a multilateral instrument, should the 'Geneva Process' fail. It raises the question of whether a bilateral agreement could replace a global regime and be sufficient to deal with the CW threat?

Since the CWC is in force, this suggestion is theoretical and holds little immediate interest for the CW disarmament regime. Yet because the Bilateral Destruction Agreement is between the two largest CW possessors, it also prompts the question of its impact for the disarmament of CW, had the CWC not entered into force? For example, in light of the Russian difficulties in CW disarmament, a provisional bilateral agreement, or provisional disarmament measures could be envisaged. It is the author's belief that had the Bilateral Destruction Agreement entered into force before the conclusion of the CWC, the current disarmament of CW in Russia would not meet so many difficulties and delays.

The main drawback of bilateral efforts was that they were seen as a concurrence to multilateral efforts at the CD. They were denounced as undermining

[930] Goldblat, n 4, 99.
[931] ACDA 1997 annual report, II Eliminating CBW <http://dosfan.lib.uic.edu/acda/reports/annual/chpt2.htm> (24/09/2005) P.

multilateral work and short-cutting multilateral disarmament negotiations.[932] For example other countries strongly opposed the bilateral proposal to maintain a 2% CW retaliatory capacity.[933]

There are ongoing bilateral efforts with agreements providing financial assistance, often under the aegis of threat reduction programs.[934] Most, but not all of these agreements are between Russia and the US.[935] Threat reduction programs are an important contribution to the multilateral regime through disarmament and non-proliferation assistance. As a result, the disarmament of CW in Russia is still largely structured by the US-Russian bilateral relationship.

Russia has inherited a multi-faced CW legacy from the SU. Such a legacy is a difficulty for the disarmament of CW as it creates burdens and complicates the disarmament process. It is the author's belief that many of these difficulties were either overlooked or not anticipated and in any case not dealt with by the multilateral CW disarmament regime. In that regard, more emphasis may be placed on the role and contribution of bilateral efforts.

Section 3: The Difficulties of Russian Chemical Weapons disarmament

The main characteristic of Russian CW disarmament is the difficulty Russia has meeting its disarmament goals. It has run into countless obstacles hindering the disarmament process. Although some were expected,[936] many remain unresolved, even thought the CWC first two deadlines have been missed.

The main difficulties are the lack of planning, the lack of a suitable destruction method and the environmental and safety requirements. These issues are interrelated and in turn spark other, parallel issues such as public opposition, the question of on- or off-site destruction and the further question of CW transportation.

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[932] SIPRI *Yearbook of World Armaments and Disarmament* 1991, 534.
[933] Goldblat, n 4, 100; Ledogar, n 11, 44.
[934] *Weapons Destruction and Non-Proliferation Agreement'*; Goldblat, n 4, 106. See also United Nations Report of the Secretary General, '*Observance of Environmental Norms in the Drafting and Implementation of Agreements on Disarmament and Arms Control*' (2000) UN document A/55/129.
[935] Foreign Affairs Canada, *Chemical Weapons Destruction* (2005) <http://www.dfait-maeci.gc.ca/foreign_policy/global_partnership> at 31 January 2006; Russian Munitions Agency, *Financial Assistance of States Donors to the Russian CW Destruction Programme* (2003) <http://www.munition.gov.ru/eng/inter.html> at 31 January 2006.
[936] *Excerpt from a Message from the President of the Russian Federation, B.N. Yelstin, to the Secretary-General of the United Nations*, (1992), UN Document A/47/77-S/23486 and Corr.1; Goldblat, n 4, 98-9, 106; *SIPRI Yearbook 1991*, 98.

The general difficulties Russia faces have mostly been examined above. Here I focus on the difficulties specific to Russian disarmament and on the aspects the author believes particularly difficult to overcome.

A. The Lack of a Disarmament Plan for Russian Chemical Weapons Disarmament

A first difficulty comes from the lack of disarmament planning. Russia is expected to adopt the necessary laws, name authorities, allocate funds and provide information about its intended disarmament task.[937] The lack of planning reflects Russia's lack of preparedness for the task of destroying its CW.

1. Earlier, Unsuccessful and Discarded Disarmament Plans

Earlier disarmament plans were adopted, with little success. Before the CWC was completed, a CWDF was secretly built at Chapaevsk, with the intention of moving all CW munitions there for destruction. The plan required CW transportation and the chosen destruction method left large quantities of waste.[938] As a result of public opposition and environmental concerns the facility was closed and converted into a training centre.[939] Further attempts to use it as an operational CWDF failed.[940] This experience is considered to be a remarkable fiasco for Russian CW disarmament.

In the context of bilateral negotiations the SU did not have a disarmament plan either, although a destruction method was sought.[941] A program was proposed in 1990, with various destruction options and intending to use a two-step destruction technology.[942] Unfortunately only small quantities of CW were destroyed. It seems regrettable to the author that the experience gained through bilateral efforts and cooperation on CW destruction methods did not give Russia the much needed head-start for the subsequent multilateral CW disarmament regime.

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[937] Federation of American Scientists, *Chemical Weapons* <http://www.fas.org/nuke/guide/russia/cbw.htm> at 31 January 2006.
[938] SIPRI Yearbook of World Armaments and Disarmament 1991; Federation of American Scientists, *Chemical Weapons* <http://www.fas.org/nuke/guide/russia/cbw.htm> at 31 January 2006; Derek Averre and Igor Khripunov, 'Chemical Weapons Disposal: Russia Tries Again' (2001) 57 (5), *Bulletin of the Atomic Scientists*, 57-63.
[939] Lois R Ember, 'The Shchuch'ye Dilemma' (2005) 83 (45), *Chemical and Engineering News,* 19-24.
[940] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16.
[941] *SIPRI Yearbook 1991*, 98.
[942] Ibid, 99.

The first real Russian destruction plan followed the Chapayevsk CWDF closure. It was largely influenced by the growing public concern about CW transportation and environmentally safe disarmament. A 1995 national decision, included in the 1995 Russian law on CW destruction,[943] adopted the principle of on-site destruction of CW at their storage sites,[944] thus ruling out the transportation of CW. In 1996 a plan or 'Programme' was adopted by the Russian Duma,[945] with objectives and priorities meeting the requirements of the law on CW destruction.[946] It provided for the on-site destruction of CW at the seven CW storage locations.[947] It designated the Ministry of Defence for eliminating CW, managing the relevant funding and informing the people affected by CW disarmament operations.[948]

This plan failed on all counts, which was mainly attributed to the choice of a military agency to implement it.[949] For example, the Ministry of Defence did not cooperate with and inform international donors. They became reluctant to provide more assistance given the opacity and lack of accountability under which it was spent and as a result, suspended funding.[950] Nationally, not enough money was allocated to chemical demilitarization, and much of it was spent on securing stockpiles.[951] The chosen destruction method chosen under the plan was met with opposition.[952] Generally, the Defence Ministry was criticized for having little expertise or interest in destroying CW, probably because it cared little for non-offensive military matters. It also failed to provide information to the population concerned by CW disarmament.

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[943] Ibid; Federal Law of the Russian Federation 'On Destruction of Chemical Weapons' (No 76-FL of May 2, 1997)
[944] Ibid; Derek Averre and Igor Khripunov, 'Chemical Weapons Disposal: Russia Tries Again' (2001) 57 (5), *Bulletin of the Atomic Scientists*, 57-63.
[945] Resolution N. 305 of 21 March 1996 of the Government of the Russian Federation 'on the Approval of the Special Federal targeted Program for the Destruction of Chemical Weapons Stockpiles in the Russian Federation'
[946] Ibid; Federation of American Scientists, *Chemical Weapons* <http://www.fas.org/nuke/guide/russia/cbw.htm> at 31 January 2006.
[947] Russian Munitions Agency, '*Comparison of Federal target Programme "Destruction of Chemical Weapons Stockpiles in the Russian federation" in novel and old wording',* <http://www.munition.gov.ru/eng/compare.html> at 31 January 2006; Derek Averre and Igor Khripunov, 'Chemical Weapons Disposal: Russia Tries Again' (2001) 57 (5), Bulletin of the Atomic Scientists, 57-63.
[948] Derek Averre and Igor Khripunov, 'Chemical Weapons Disposal: Russia Tries Again' (2001) 57 (5), *Bulletin of the Atomic Scientists*, 57-63.
[949] Ibid
[950] Ibid; General Accounting Office Report, '*Weapons of Mass Destruction: Efforts to Reduce Russian Arsenals May Cost More, Achieve Less than Planned'* GAO/NSIAD-99-76, April 1999.
[951] Derek Averre and Igor Khripunov, 'Chemical Weapons Disposal: Russia Tries Again' (2001) 57 (5), *Bulletin of the Atomic Scientists*, 57-63.
[952] Ibid, 57-63.

A new plan was adopted in 2001,in an attempt to remedy the difficulties and delays of the destruction schedule. It was also the opportunity to reorganize what had been until then a failed CW disarmament program and change Russia's approach to chemdemil.

A new civilian agency, the Russian Munitions Agency Firstly, was created and given the responsibility and authority over the CW disarmament program.[953] Although it did not entirely remove the military influence on decisions, this move was intended to remedy the mistake of choosing a military agency to head the CW disarmament program.[954] Secondly, the 1996 resolution was amended and a new resolution adopted the modified destruction plan, authorizing and planning CW disarmament.[955] The provision requiring on-site destruction was also amended.[956]

The 2000 Programme differs from the 1996 Programme in many respects. The destruction time-frame was adjusted from 1995-2009 to 2001-2012.[957] The number of CWDF changed from seven (corresponding to the seven CWSF) to three,[958] implying the transportation of nerve agent CW from four CWSF to the single CWDF destroying nerve agents at Shchuchye, in southern Russia.[959] The new plan also sought to cut costs while accelerating the disarmament process, with reduced

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[953] Resolution No 510 of July 5, 2000 'On Introduction of amendments and supplements to Resolution of the Government of the Russian Federation of March 21, 1996, No 305 'On Approval of federal target Programme 'Destruction of Chemical Weapons in the Russian Federation' ; Derek Averre and Igor Khripunov, 'Chemical Weapons Disposal: Russia Tries Again' (2001) 57 (5), *Bulletin of the Atomic Scientists*, 57-63; Russian Munitions Agency, *Current News* , <http://www.munition.gov.ru/eng/news.htm> at 31 January 2006.

[954] Derek Averre and Igor Khripunov, 'Chemical Weapons Disposal: Russia Tries Again' (2001) 57 (5), *Bulletin of the Atomic Scientists*, 57-63.

[955] Federal Target Programme '*Destruction of Chemical Weapons Stockpiles in the Russian Federation*' adopted by Resolution of the Government of the Russian Federation N. 305 of 21 March 1996 and Resolution No 510 of July 5, 2000 '*On Introduction of amendments and supplements to Resolution of the Government of the Russian Federation'* of March 21, 1996, No 305 'On Approval of federal target Programme 'Destruction of Chemical Weapons in the Russian Federation', respectively. See also Resolution of the Government of the Russian Federation No 199 of march 19, 2001 '*On Approval of Provision on Licensing activity relevant to storage, transportation and destruction of chemical weapons, handling toxic chemicals and wastes, produced during destruction of chemical weapons'*

[956] Derek Averre and Igor Khripunov, 'Chemical Weapons Disposal: Russia Tries Again' (2001) 57 (5), *Bulletin of the Atomic Scientists*, 57-63.

[957] Russian Munitions Agency, *Comparison of Federal target Programme 'Destruction of Chemical Weapons Stockpiles in the Russian federation in novel and old wording*, <http://www.munition.gov.ru/eng/compare.html> at 31 January 2006.

[958] Ibid; Russian Munitions Agency, *Current News* , <http://www.munition.gov.ru/eng/news.htm> at 31 January 2006.

[959] Ibid; Russian Munitions Agency, *Federal Target CWD Programme*, <http://www.munition.gov.ru/eng/prog_uho.htm> at 31 January 2006, General Accounting Office Report, '*Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation*', GAO-04-361, March 2004, 9.

personnel, accommodation and infrastructure costs/expenditures to the necessary minimum.[960]

Under the new program the scope of CW disarmament activities was broadened to include the destruction or conversion of CWPF and measures to implement the CWC.[961] Matters relating to funding, to the transfer of authority from the military to a civilian agency were also organized in the new plan.[962]

The new planning resulted in detailed plans for each of the three CWDF. The CWDF at Kambarka would destroy lewisite; it began operations in 2005.[963] The Gornyi facility, which had its separate plan without U.S assistance, was completed and started operations in 2005, destroying lewisite and other blister agents.[964] The Shchuchye CWDF was planned in two stages. The first would destroy artillery munitions stored at Shchuchye and Kizner; the second would destroy air-borne munitions from the Pochep, Maradykovskiy and Leonidovka CWSF.[965]

In retrospect it seems obvious that the planned Shchuchye CWDF facility cannot meet its goals. This facility illustrates the difficulties of elaborating and complying with a CWDF plan. The Shchuchye case is also crucial for CW disarmament since it is the only CWDF destroying Russian nerve agents.

In the framework of bilateral assistance or threat reduction programs, destruction plans were drawn up in cooperation with the US, focusing on the Shchuchye CWSF site. The construction of a pilot CWDF for Russian CW disarmament was envisaged; its design and construction was entirely funded by the USA. The negotiations on the Shchuchye facility began in 1994.[966] The October 1997

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[960] Ibid.
[961] Ibid; Russian Munitions Agency, Comparison of Federal target Programme 'Destruction of Chemical Weapons Stockpiles in the Russian federation in novel and old wording, <http://www.munition.gov.ru/eng/compare.html> at 31 January 2006.
[962] Russian Munitions Agency, *Current News*, <http://www.munition.gov.ru/eng/news.htm> at 31 January 2006.
[963] Ibid; Russian Munitions Agency, '*Plan for the Construction and Operation of Chemical Weapons Destruction Facilities in the Russian Federation'* (with the USA Financial and Technical Assistance) (2003), <http://www.munition.gov.ru/rng/schm3_2.htm> at 31 January 2006.
[964] Russian Munitions Agency, Chemical Disarmament, '*Facilities of CW Stockpiling and Destruction'* (2003), <http://www.munition.gov.ru/eng/objran2.html> at 31 January 2006.
[965] Russian Munitions Agency, Plan for the Construction and Operation of Chemical Weapons Destruction Facilities (With U.S Financial and Technical Assistance (2003), <http://www.muntion.gov.ru/eng/objhran3.html> at 31 January 2006.
[966] General Accounting Office Report, 'Weapons of Mass Destruction: Efforts to Reduce Russian Arsenals May Cost More, Achieve Less than Planned' GAO/NSIAD-99-76, April 1999, 5; General Accounting Office Report, 'Observations on U.S Threat Reduction and Nonproliferation Programs in Russia', GAO-03-526T, March 2003, 5-6.

initial joint schedule planned the start of operations by December 2004.[967] Unfortunately a series of obstacles slowed the design, postponed U.S funding and delayed the entire project.[968] A new schedule was adopted in June 1998 with an 18-months delay from the initial schedule.[969] Additional obstacles and delays further postponed the beginning of destruction operations to 2008,[970] and 2009,[971] while assistance to build the facility increased to US$ 2 billion.[972]

Difficulties encountered with the Shchuchye CWDF cast doubts upon the feasibility of disarmament plans. The destruction of the CW stored at Shchuchye illustrates the delays and difficulties which can be expected. Russia's initial 1997 plan was considered unrealistic by the U.S,[973] yet Russia insisted on it destroying its CW ahead of the CWC schedule.[974] As early as 1995, Russia was not expected to meet its CWC deadlines.[975] Of the two million munitions stored at Shchuchye, 95% (or 5 600 metric tons) is small munitions containing nerve agents (artillery rounds and rocket warheads) while the remaining 5% of the depot is phosgene.[976] When the pilot CWDF is completed, the destruction capacity will be 500 metric tons a year. At that rate the Shchuchye munitions would be destroyed by 2017, but is full-scale CWDF is built at Shchuchye it could be done by the CWC extended 2012 deadline.[977] Yet only 14% of Russia's declared CW stockpile (and 17% of the nerve agent stockpile) would be destroyed by 2012. Ideally, for Russia to meet its destruction obligations under the CWC, additional CWDF would have to be built to increase the destruction rate. Unfortunately this is both time and resource-consuming, and in light of the difficulties

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[967] General Accounting Office Report, 'Weapons of Mass Destruction: Efforts to Reduce Russian Arsenals May Cost More, Achieve Less than Planned' GAO/NSIAD-99-76, April 1999, 11, 13.
[968] Ibid, 11-13.
[969] Ibid, 3, 13; Russian Munitions Agency, Plan for the Construction and Operation of Chemical Weapons Destruction Facilities in the Russian Federation (with the USA Financial and Technical Assistance) (2003), <http://www.munition.gov.ru/rng/schm3_2.htm> at 31 January 2006.
[970] Government Concentrates, 'Chemical Treaty to Allow Arms Plants Switch' (2005) 83 (6), *Chemical and Engineering News*, 23.
[971] Government Concentrates, 'Construction of Russian Arms Disposal Site Threatened' (2005) 83 (40), *Chemical and Engineering News,* 30.
[972] Ibid.
[973] General Accounting Office Report, '*Weapons of Mass Destruction: Efforts to Reduce Russian Arsenals May Cost More, Achieve Less than Planned'* GAO/NSIAD-99-76, April 1999, 12.
[974] Ibid, 13.
[975] General Accounting Office Report, '*Weapons of Mass Destruction: Efforts to Reduce Russian Arsenals May Cost More, Achieve Less than Planned'* GAO/NSIAD-99-76, April 1999, 12.
[976] Russian Munitions Agency, Plan for the Construction and Operation of Chemical Weapons Destruction Facilities in the Russian Federation (with the USA Financial and Technical Assistance) (2003), <http://www.munition.gov.ru/rng/schm3_2.htm> at 31 January 2006.
[977] Ibid.

encountered by Russia, appears highly unlikely. Such a prospect clearly undermines the credibility of the CWC destruction obligations.

It can be noted that the information on disarmament plans provided by the Russian Munitions Agency differs slightly concerning the dates of completion and operation of CWDF. In addition, information from Russian officials varies greatly from that provided by US officials. Only information about the Gornyi CWDF, which was completed in 2002 according to planning, seems accurate.[978] Operations for the destruction of Category 1 CW began in December 2002,[979] at a destruction rate which allowed Russia to meet its first intermediate, although extended, deadline (1% of Category 1 CW) by April 2003.[980] The destruction of lewisite at the Gornyi facility mostly corresponded to the plan, which provided that all CW stockpiled there would be destroyed by 2005, and can be considered successful.[981]

Recently the Russian CW disarmament plan was changed, unfortunately there is little information available on the causes or the outcome of this revision.[982] However, regardless of the adopted plan, it appears obvious that Russia cannot meet the final CWC destruction deadline in 2012. The best outcome for Russian CW disarmament would be its completion within a reasonable time frame, while meeting the CWC's environmental, safety and irreversible destruction requirements.

2. On- or Off-site Destruction and Chemical Weapons Transportation

The question of on- or off-site destruction and the corollary question of CW transportation is another difficulty of Russian CW disarmament planning. On-site destruction at CW storage sites would require a significant effort since a CWDF must be built at each site. For obvious reasons, this option is abandoned in the current plan.

As of 2006 there is only one operational CWDF at Gornyi, one under construction at Shchuchye and a third planned at Kambarka.[983] The Shchuchye

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[978] *SIPRI Yearbook 2003*, 656.
[979] Ibid.
[980] *Report of the OPCW on the Implementation of the Chemical Weapons Convention in 2003*, ninth Session of the Conference of the States Parties; document C-9/5, 30 November 2004; Russian Munitions Agency, '*Facilities of CW Stockpiling and Destruction* (2003), <http://www.munition.gov.ru/eng/objran2.html> at 31 January 2006.
[981] Russian Munitions Agency, Chemical Disarmament, '*Facilities of CW Stockpiling and Destruction*' (2003), <http://www.munition.gov.ru/eng/objran2.html> at 31 January 2006.
[982] 'In October 2005, the Russian Government adopted a revised chemical destruction plan' Foreign Affairs Canada, *Chemical Weapons Destruction* (2005) <http://www.dfait-maeci.gc.ca/foreign_policy/global_partnership> at 31 January 2006.
[983] Russian Munitions Agency, '*Facilities of CW Stockpiling and Destruction* (2003), <http://www.munition.gov.ru/eng/objran2.html> at 31 January 2006.

facility has taken over a decade from the initial decision to the beginning of construction. The construction of five other CWDF in time to meet the CWC deadlines appears impossible, or would require a great investment from Russia combined with constant international assistance.

The current planning, based on off-site destruction, raises the debate of CW transportation, on which the Russian population is undecided [984]and the government unprepared.[985] Transportation of CW to CWDF implies moving thousands of tons of CW agents and millions of munitions by rail over hundreds of miles, a transit which is particularly vulnerable to theft or diversion or attacks,[986] and hazardous for the populations involved. In Russia, options including transport must be secure and call for a reform of the Russian transport system and infrastructure.[987] In addition, the concerned regions need help from the central government. Finally, local laws prohibiting CW transit through towns must be modified to allow CW transportation.

B. The Lack of a Suitable Destruction Method

Russia must also find a suitable CW destruction method, which is another aspect of disarmament planning. The process of finding a suitable method began early but remains unresolved. Like other possessors, Russia consecutively considered incineration and underground nuclear explosions and discarded these methods for environmental and safety reasons.[988] Caustic hydrolysis, the 'universally used' method for numerous chemical agents, was similarly discarded because the destruction process is not irreversible and results in lots of by-products.[989]

After much hesitation a two-step method was adopted in the former SU, which involved the intermittent detoxification of agents and incineration (or conversion) of

[984] *SIPRI Yearbook 1991*, 111. Michael Nguyen, 'Russia Speeds Chemical Weapons Disposal' (2005) 35 (1), *Arms Control Today*, 43-44.
[985] General Accounting Office Report, '*Additional Russian Cooperation Needed to Facilitate U.S Efforts to Improve Security as Russian Sites'*, GAO-03-482, March 2003, 7; Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16.
[986] General Accounting Office Report, '*Additional Russian Cooperation Needed to Facilitate U.S Efforts to Improve Security as Russian Sites'*, GAO-03-482, March 2003, 7.
[987] Derek Averre and Igor Khripunov, 'Chemical Weapons Disposal: Russia Tries Again' (2001) 57 (5), *Bulletin of the Atomic Scientists*, 57-63.
[988] Leonov and Sheluchenko, n 589, 94, 96 and Feshbach, n 832, 22.
[989] Leonov and Sheluchenko, n 589, 94, 96-7.

the by-products.[990] The method was demonstrated in 1987 at Shikhany at the occasion of international visits.[991]

Contradictions remained regarding the two-step method. On the one hand, it was considered suitable by environmental and health standards but unfortunately, could not produce a sufficient destruction rate.[992] However, it was proposed in 1999 as the choice CW disarmament method for the new plan, but was opposed for environmental reasons.[993] In spite of this a similar method has been adopted and is now used for disarmament of nerve agent CW.[994] U.S assistance for the design and construction of the pilot CWDF at Shchuchye sought to 'provide Russia with a proven technology to use at other CWDF,'[995] and this method was confirmed as suitable.[996] However, confusion remains as to how and by what standard it was deemed suitable.

The difficulty of finding a suitable destruction or conversion method for the Russian arsenal remains unresolved. Although it is not specific to Russia, the poor condition and wide-ranging composition of its arsenal makes destruction difficult, because of the variety of chemical agents and especially because it includes large quantities of lewisite (and other, similar blister agents based on arsenic).[997] Such CW agents require a specific method and further research efforts.[998] In addition, there are leaking and damaged munitions, which makes their safe handling, emptying and transportation delicate.[999]

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[990] Ibid, 97; *SIPRI Yearbook 1991*, 100.
[991] Ibid, 98; *SIPRI Yearbook 1991*, 98.
[992] Ibid.
[993] Derek Averre and Igor Khripunov, 'Chemical Weapons Disposal: Russia Tries Again' (2001) 57 (5), *Bulletin of the Atomic Scientists*, 57-63.
[994] Federation of American Scientists, *Chemical Weapons* <http://www.fas.org/nuke/guide/russia/cbw.htm> at 31 January 2006.
[995] General Accounting Office Report, '*Weapons of Mass Destruction: Efforts to Reduce Russian Arsenals May Cost More, Achieve Less than Planned'* GAO/NSIAD-99-76, April 1999,1, 3.
[996] Russian Munitions Agency, *Russian Technologies for CW destruction* (2003) <http://www.munition.gov.ru/eng/mdrntch.htm> at 31 January 2006.
[997] Federation of American Scientists, *Chemical Weapons* <http://www.fas.org/nuke/guide/russia/cbw.htm> at 31 January 2006.
[998] *SIPRI Yearbook 1991*, 99-101; Leonov and Sheluchenko, n 589, 94, 95, 98-9 ; Federation of American Scientists, *Chemical Weapons* <http://www.fas.org/nuke/guide/russia/cbw.htm> at 31 January 2006.
[999] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16.

1. Public Health, Environmental Protection Requirements and Public Response to Chemical Weapons Disarmament

Russia is obliged to find a disarmament method which meets environmental protection and public safety requirements.[1000] The earlier part of this study shows that these are crucial, yet technologically and politically difficult requirements of the CW disarmament regime.[1001] These issues are common for every CW possessor, yet in Russia they are further complicated by the existing environmental and health situation, and directly linked with public concerns with environmental and health protection. Such concerns are both a general society problem in Russia and a hindrance in the choice of a CW destruction method.

Russia inherited the former SU's disastrous environmental and health legacy, which is largely attributed to military activities,[1002] and also to early CW disposal activities.[1003] Attention to environmental matters was mostly non-existent during the Soviet era.[1004] With the collapse of the SU, the population's awareness and preoccupation with environmental protection increased. The environmental and public health issues of CW disarmament first appeared in the context of bilateral efforts.[1005]

Influential environmental groups swayed public opinion and oriented decisions, including those related to CW disarmament.[1006] As a consequence decisions related to CW disarmament were blocked by groups and by the population, partly because of their potentially harmful impact on the environment, but also out of mistrust for the central government's projects.[1007] However, information disseminated about the environmental and health effects of CW disarmament must be considered carefully and environmental groups are sometimes accused of misinforming the public to serve their own purposes.[1008]

As the Chapayevsk fiasco shows, public concern about environmental matters carries a lot of weight in Russia and can block the disarmament process. It has

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[1000] Chemical Weapons Convention, arts 1, 2, 4 and 5; Verification Annex Parts IV (A) and V.
[1001] Leonov and Sheluchenko, n 589, 94, 95 ; Russian Munitions Agency, *Russian Technologies for CW destruction* (2003) <http://www.munition.gov.ru/eng/mdrntch.htm> at 31 January 2006.
[1002] Feshbach, n 832, 4, 17.
[1003] Ibid, 50-51.
[1004] Edwin Bacon and Matthew Wyman, *Contemporary Russia*, (2006), 33-4.
[1005] *SIPRI Yearbook 1991*, 111.
[1006] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 3.
[1007] *SIPRI Yearbook 1991*, 111.
[1008] Russian Munitions Agency, *Implementation Problems of the CW Convention* (2003), <http://www.munition.gov.ru/eng/prbc3.html> at 31 January 2006.

blocked the adoption of the first Russian law on CW destruction.[1009] It results in regional and local decisions and laws preventing CW destruction or transportation in regions where CWSF are located.[1010]

In order to avoid this difficulty the public is informed by official authorities about CW disarmament and how it might affect them. By providing accessible and reliable information, the intent is to rally support from the population and avoid political blocks. Poor provision of information was a failure of the 1996 disarmament Programme which the 2000 Programme has attempted to remedy.

International assistance for Russian CW disarmament also addresses environmental and safety questions and public information matters. A substantial part of the assistance is directly allocated to environmental and health studies, laboratories, or impact statements and part of the assistance supports efforts for informing the public on CW disarmament matters.[1011]

Environmental protection and safety are included in the Russian laws on CW disarmament,[1012] and the Russian Munitions Agency is mandated with adopting the necessary measures to meet these obligations.[1013] For example, units relaying information to regional centres 'of the environmental monitoring system must be created in regions where CWDF are located'.[1014] Measures to avoid excessive pollution must also be adopted, including measures in respect of pollution abatement systems, emission standards, controls of emissions, waste and the storage of waste.[1015] However, it has been commented that Russia simply lacked environmental laws to protect people's interests and generally did not have adequate legislation on CW demilitarization.[1016]

[1009] Federation of American Scientists, *Chemical Weapons* <http://www.fas.org/nuke/guide/russia/cbw.htm> at 31 January 2006.
[1010] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16.
[1011] Foreign Affairs Canada, *Chemical Weapons Destruction* (2005) <http://www.dfait-maeci.gc.ca/foreign_policy/global_partnership> at 31 January 2006.
[1012] United Nations Report of the Secretary General, '*Observance of Environmental Norms in the Drafting and Implementation of Agreements on Disarmament and Arms Control'*[22] (2000) UN document A/55/129; Russian Munitions Agency, *Federal Target CWD Programme*, <http://www.munition.gov.ru/eng/prog_uho.htm> at 31 January 2006; Federation of American Scientists, *Chemical Weapons* <http://www.fas.org/nuke/guide/russia/cbw.htm> at 31 January 2006.
[1013] United Nations Report of the Secretary General, '*Observance of Environmental Norms in the Drafting and Implementation of Agreements on Disarmament and Arms Control'* [22] (2000) UN document A/55/129.
[1014] Ibid.
[1015] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16.
[1016] Ibid, 3.

There is no full knowledge of the long-term effects of CW and CW disarmament on man and the environment and therefore no certain protection from it. There is no guarantee that permanent harm will not come out of CW disarmament. This explains the Russian proposal to postpone CW disarmament until sufficient protection can be offered, with legal guarantees and a satisfactory destruction method.

Environmental protection raises many questions yet the CWC provides little help to solve them. It is not an environmental protection instrument and has loopholes. The authors of the CWC were preoccupied with environmental protection and human safety but in the author's view they did not consider how it would fit with environmental law. In Russia the fulfilment of these obligations is particularly difficult. To a certain extent it can be concluded that environmental and health concerns clash with CW disarmament.

2. The Administrative Organization of Russia

A final difficulty of Russian CW disarmament relates to its administrative organization. As a result of the decentralization following the end of the former SU the regions and local communities have lots of power. In spite of a move towards re-centralization of power, the division of power between the regions and the central government gets in the way of successful CW disarmament.

Many decisions relevant to CW disarmament are adopted at the regional level or jointly with the federal centre and keep the central government from implementing its CW disarmament plans and from complying with its CWC obligations. There is clearly a lack of cooperation between the administrative levels.

Laws adopted by the regions contradict federal laws in the area of CW disarmament. For example, some regions have adopted laws prohibiting transit of CW through their territories, thereby excluding off-site disarmament and going against the national destruction plan.[1017] Others have adopted laws prohibiting CW destruction altogether.[1018] Some laws do not agree with national laws on CW matters, other directly oppose them.

Yet participation of the concerned regions is crucial.[1019] The deliverance of destruction permits and environmental and construction permits depends on a working

[1017] Ibid.
[1018] Ibid.
[1019] Russian Munitions Agency, *Current News* (2003), <http://www.munition.gov.ru/eng/news.htm> at 31 January 2006.

relationship with the regions. The central government has attempted to remedy the problems by involving the regions and other actors concerned about CW disarmament in the process. This can be seen as a positive step and a democratic move; but it is really a political move intended to avoid local opposition to CW disarmament.[1020]

Cooperation between the regions and the central government was a key argument for the CWC's ratification. The regions wanted investment and help with their infrastructure from the central government in exchange for their cooperation with the disarmament projects. CW disarmament is not usually welcomed by regions but in a context of economic drought it is seen as a development opportunity.[1021] This should improve support for the government's CW disarmament projects in the affected regions but help cannot be provided.[1022] The central government has hardly enough funds to secure CW storage and pay its share of the disarmament costs; it cannot finance local development.[1023]

The Russian administrative organization complicates CW disarmament. In relation to CW, the regions want more political power and investment or guarantees for their development. The central government wants more cooperation, but the financial channel between them is dry. This issue is not entirely different from that encountered in the US between local communities and the federal government, although in the US it does not present such a difficulty.

The level of involvement of local communities and regions in disarmament decisions calls for a comment. Although they are affected by disarmament and must be involved and represented in disarmament decisions, this should not compromise the success of the CWC. Disarmament obligations are contracted among sovereign states; theoretically the CWC should not have to deal with the infra-national levels. Unfortunately the CWC is silent about the obligations of its signatories in respect to their component states.

[1020] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16.
[1021] Lois R Ember, 'The Shchuch'ye Dilemma' (2005) 83 (45), *Chemical and Engineering News,* 19-24.
[1022] Ibid.
[1023] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16; Feshbach, n 832, 6.

C. Financing chemical weapons disarmament

Financing CW disarmament in Russia has turned out to be a major problem and a decisive condition for its feasibility; Russian CW disarmament is a very costly undertaking.[1024] There is a chronic lack of funding for the disarmament of CW. As a result Russian CW disarmament efforts are mostly funded with international assistance which is completed by Russia.

1. Foreign financial assistance to Russian chemical weapons disarmament: the Cooperative Threat Reduction Program.

International assistance focuses mostly on the Cooperative Threat Reduction (CTR) Programme, which CTR is the main and most diverse program for dealing with the CW threat.[1025]

CTR was initiated by two US senators Nunn and Lugar in 1991;[1026] it was intended to reduce the threat posed by former soviet WMD.[1027] The program authorizes the US Department of Defence (DOD), Department of Energy (DOE) and the State Department (State) to spend funds allocated by congress to help Russia secure, transport and destroy its WMD.[1028] DOD has been designated as the executive for the programs. The objectives of CTR are to control, eliminate and secure WMD.[1029] It primarily seeks to reduce WMD proliferation, and most funding is meant to curb the spread of weapons. Yet it includes disarmament efforts, among which assistance for CW disarmament.[1030]

CTR assistance began with former Soviet nuclear weapons and later expanded to other WMD. Russia is the main beneficiary since it poses the greatest threat and has inherited the bulk of the former SU's WMD capabilities.[1031] Other beneficiaries

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[1024] Feshbach, n 832, 65.
[1025] General Accounting Office Report, '*Observations on U.S Threat Reduction and Nonproliferation Programs in Russia*', GAO-03-526T, March 2003, 2, 3.
[1026] Office of the Inspector general, Department of Defence, '*Cooperative Threat Reduction Program'*, report D-2001-074, March 2001, 1.
[1027] Ibid.
[1028] The White House, '*Safe, Secure Dismantlement (SSD) Initiatives with Russia*', 4 April 1993, < http://dosfan.lib.uic.edu/acda/factshee/wmd/nuclear/ctr/ssdrussi.htm > at 24 September 2005, 1; GAO/T-NSIAD/RCED-00-119, WMD: *US Efforts to Reduce Threats From the Former Soviet Union*, March 2000, 1.
[1029] Office of the Inspector general, Department of Defence, '*Cooperative Threat Reduction Program'*, report D-2001-074, March 2001, 1.
[1030] General Accounting Office Report, '*Weapons of Mass Destruction: Status of the Cooperative Threat Reduction Program*', GAO/NSIAD-96-222, 1999, 1, 18, 28.
[1031] Ibid, 1.

include Belarus, Kazakhstan, Ukraine, Moldova and Georgia, and more recently, Albania and Libya.[1032]

The organization of the assistance is achieved through implementing agreements;[1033] the main implementing agreement was signed on 30 July 1992.[1034] It granted US$25 million for planning destruction and finding a destruction technology. A work plan on US assistance was concluded in January 1994 (mostly to cooperate in finding a destruction method).[1035] Another was signed in April 1995, providing an additional US$ 30 million in Nunn-Lugar funding. This plan focused on environmental protection during CW destruction.[1036]

The financial assistance released through the CTR program is large. For 2003 the estimated total funding to Russia was US$ 133.6 million for CW destruction assistance.[1037] Russia's 'pilot destruction facility' for nerve agents, Shchuch'ye, is entirely funded with US CTR assistance.[1038] In 2002 US$35 million was allocated for this plant, and the funds were finally released in January 2003. Russia therefore relies very heavily on this assistance; the realization of CW disarmament depends on it.[1039]

The relationship between Russia and international donors financing CW disarmament is an unhealthy one. Firstly, Russia conditioned its ratification of the CWC upon the promise of international assistance to help it meet its disarmament obligations.[1040]

[1032] Office of the Inspector general, Department of Defence, '*Cooperative Threat Reduction Program'*, report D-2001-074, March 2001, 1; George W Bush 'Presidential determination on Use of cooperative threat reduction funds in Albania Under section 1308 of the national defense authorization act for fiscal year 2004' (2004) 40, *Weekly compilation of presidential documents*, 2507-2508 ; Government Concentrates, 'US to help destroy Albanian weapons' (2004) 82 (44) *Chemical and Engineering News,* 19 and Nuclear Threat Initiative, '*Annual Report 2004'* (2005), 35.

[1033] The White House, '*Safe, Secure Dismantlement (SSD) Initiatives with Russia*', 4 April 1993, < http://dosfan.lib.uic.edu/acda/factshee/wmd/nuclear/ctr/ssdrussi.htm > at 24 September 2005, 1; Office of the Inspector general, Department of Defence, 'Cooperative Threat Reduction program', report D-2001-074, March 2001, 1.

[1034] ACDA 1997 annual report, II Eliminating CBW <http://dosfan.lib.uic.edu/acda/reports/annual/chpt2.htm> (24/09/2005); ACDA 1996 annual report, II Eliminating CBW <http://dosfan.lib.uic.edu/acda/reports/annual/ch2.htm > (24/09/2005).

[1035] Ibid

[1036] ACDA 1997 annual report, II Eliminating CBW <http://dosfan.lib.uic.edu/acda/reports/annual/chpt2.htm> (24/09/2005).

[1037] *SIPRI Yearbook 2003*, 657.

[1038] Ibid, 656-7; see also George W Bush, 'Presidential determination on Waiver of conditions on Obligation and Expenditure of funds for Planning, Design and construction of a chemical weapons destruction facility in Russia' (2004) 40 (49), *Weekly compilation of presidential documents*,

[1039] Russian Munitions Agency, *Current News* (2003), <http://www.munition.gov.ru/eng/news.htm> at 31 January 2006; OPCW, Executive Council, 27th sess, Dec 4-7 2001, EC/

[1040] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16.

Secondly, Russia has not always handled international funding well. The 1996 Destruction Programme resulted in opaque spending, poor management and little accountability of international assistance. Donors expressed doubts and eventually suspended their funding.[1041] Russia reacted by condemning donors for not meeting their obligations and public information on the matter accused international donors of keeping Russia from meeting its CWC commitments by holding back promised funds.

Thirdly Russia repeatedly fails to meet CTR conditions. There are six conditions for the release of CTR funds.[1042] The main two conditions require that Russia establishes a plan for the destruction of nerve agents, and that all nerve agents be destroyed at the Shchuch'ye CWDF.[1043] These conditions have not been met. Russia appears undecided between on- or off-site destruction of nerve agents yet it is also reluctant to transport CW because of the public opposition. Russia seems to be oblivious to the fact that conversion and on-site destruction violate the US-Russian bilateral agreement on assistance.[1044]

Another important condition requires that Russia pay its share of funding for CTR projects. When it fails to meet this condition, because of under-funded CW disarmament,[1045] international assistance is suspended or the budgets cut, which in turn delays CW disarmament.[1046]

Because of these difficulties, CTR conditions have been waived. The U.S President has the authority to waive the conditions and release the CTR funds every year, for national security purposes.[1047] It was recently proposed that CTR legislation should totally eliminate these conditions as they are never met.[1048] The chronic difficulty of Russia in meeting the conditions imposed by the US Congress in the

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[1041] Derek Averre and Igor Khripunov, 'Chemical Weapons Disposal: Russia Tries Again' (2001) 57 (5), *Bulletin of the Atomic Scientists*, 57-63.
[1042] Bernier, n 192, 84-104; 'Nunn-Lugar Conditions' (2004) 34 (10), *Arms Control Today*, 32 ; General Accounting Office Report, '*Weapons of Mass Destruction: Efforts to Reduce Russian Arsenals May Cost More, Achieve Less than Planned'* GAO/NSIAD-99-76, April 1999, 14.
[1043] Michael Nguyen, 'Russia Speeds Chemical Weapons Disposal' (2005) 35 (1), *Arms Control Today*, 43-44.
[1044] Ibid.
[1045] Feshbach, n 832, 65.
[1046] General Accounting Office Report, '*Weapons of Mass Destruction: Status of the Cooperative Threat Reduction Program*', GAO/NSIAD-96-222, 1999, 19.
[1047] George W Bush, 'Presidential determination on Waiver of conditions on Obligation and Expenditure of funds for Planning, Design and construction of a chemical weapons destruction facility in Russia' (2004) 40 (49), *Weekly compilation of presidential documents*.
[1048] Michael Nguyen, 'Russia Speeds Chemical Weapons Disposal' (2005) 35 (1), *Arms Control Today*, 43-44; William Huntington, 'President Gains Permanent CTR Waiver Power' (2006) 36 (1), *Arms Control Today*, 33-4.

umbrella agreement has threatened the existence of CTR assistance and with it the success of CW disarmament.[1049] The extension of the umbrella agreement was threatened in 1999 and again in 2005. A key disagreement is the liability provision in the umbrella agreement, according to which Russia is responsible for any accident, even if the fault is American.[1050] Russia refuses to cooperate and abide by conditions it deems unfair. Finally CTR is also encountering domestic resistance and scepticism in the US.[1051]

A more general difficulty relates to Russia's attitude towards international assistance. It takes this assistance for granted, and has even criticized international donors for not meeting their financial commitments, while not keeping its end of the bargain.[1052] Such problems can also be attributed to the poor presentation of CTR (and similar bilateral programs) to the Russian public, and to the lack of interest in them.[1053]

Finally, minor difficulties affect threat reduction programs; for example, the reluctance from Russia to provide access to sites which must be secured or monitored.[1054] However, access to CW is not problematic and benefits from more cooperation from Russia, in comparison to other WMD.[1055]

The outcome of the CTR assistance for CW disarmament in Russia is mitigated and not all financial aspects of Russian CW disarmament are negative. Lessons have been learned from previous CTR assistance, and there has been progress in Russian CW disarmament funding. For example, the 2005 budget for CW disarmament was more than twice the 2004 budget.[1056] In spite of difficulties, CTR assistance tends to increase and become more diverse.[1057] Yet financial assistance is

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[1049] Peter Eisler, 'Disputes Slow Arms Protection in Russia; Millions in U.S Aid Held up by Legal, Political Snags' *USA Today* (Mc Lean), 14 December 2004, A1; Peter Eisler, 'Renewal of Deal to Help Secure Russian Arms in Doubt' *USA Today* (Mc Lean), 14 December 2004, A2.
[1050] Kenneth Luongo and William Hoehn, 'An Ounce of Prevention' (2005) 61 (2), *Bulletin of the Atomic Scientists*, 28-35.
[1051] Ibid.
[1052] Michael Nguyen, 'Russia Speeds Chemical Weapons Disposal' (2005) 35 (1), *Arms Control Today*, 43-44.
[1053] Pogorely, n 178, 93; Kenneth Luongo and William Hoehn, 'An Ounce of Prevention' (2005) 61 (2), *Bulletin of the Atomic Scientists*, 28-35.
[1054] Bernier, n 192, 84-104.
[1055] Alex Rodriguez, 'NATO: Russia Resisting Efforts to Secure WMD' *Knight Ridder Tribune Business News* (Washington), 22 December 2005, 1.
[1056] Michael Nguyen, 'Russia Speeds Chemical Weapons Disposal' (2005) 35 (1), *Arms Control Today*, 43-44.
[1057] General Accounting Office Report, '*Weapons of Mass Destruction: Status of the Cooperative Threat Reduction Program*', GAO/NSIAD-96-222, 1999, 3, 6; General Accounting Office Testimony,

complicated by economic and political factors. The economic situation in Russia greatly compromises CW disarmament. The political situation between the US and Russia is also unfavourable for international assistance and transparency between the two countries. Russia's accusation that the US is attempting to disarm it, is one example of the perception of US involvement in Russian defence matters.[1058] Financial difficulties affect all CW possessors in their disarmament task but in the author's view, in Russia it is probably the greatest obstacle to the achievement of CW disarmament.

2. Other Sources of International Financial Assistance for the Disarmament of Russian Chemical Weapons

There are other channels for international assistance, and although the US is by far the largest it is not the only donor.[1059] Germany is 'second largest donor' and focuses primarily on CW destruction.[1060] Other donors include the EU, Sweden, Norway, Finland, Italy, Britain, Netherlands, Canada, and Switzerland.[1061] They provide assistance through separate bilateral agreements or programs, usually focused on single CW disarmament-related projects. Assistance may also be channelled through multilateral projects such as the G8 Global Partnership Program, another threat reduction program similar to CTR.[1062]

Not all financial assistance for CW is directed at CW disarmament. Threat reduction programs also focus on securing stockpiles and on reducing the chances of proliferation by employing or funding projects for former soviet WMD scientists.[1063] The 'human' legacy of the former SU is also a potential proliferation risk and a threat;

'*Weapons of Mass Destruction: U.S Efforts to Reduce Threats from the Former Soviet Union'*. GAO/T-NSIAD/RCED-00-119, March 2000, 2.

[1058] Pogorely, n 178, 92.

[1059] General Accounting Office Report, '*Weapons of Mass Destruction: Status of the Cooperative Threat Reduction Program*', GAO/NSIAD-96-222, 1999, 7.

[1060] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 10.

[1061] Russian Munitions Agency, *Financial Assistance of States Donors to the Russian CW Destruction Programme* (2003) <http://www.munition.gov.ru/eng/inter.html> at 31 January 2006.

[1062] Foreign Affairs Canada, *Chemical Weapons Destruction* (2005) <http://www.dfait-maeci.gc.ca/foreign_policy/global_partnership> at 31 January 2006; the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction. See also Nuclear Threat Initiative, Annual Report 2004, 36.

[1063] General Accounting Office Report, '*Weapons of Mass Destruction: Some U.S Assistance to Redirect Russian Scientists Taxed by Russia'*, GAO/NSIAD-00-154R, April 2000, 1-6.

it is the object of numerous threat reduction programs.[1064] The solution to that threat is the employment of the scientists and their redirection to peaceful research projects or occupations.[1065] The main project in that area is the International Science and Technology Centre (ISTC), an international organization which redirects the expertise of former Soviet weapons scientists into peaceful scientific projects.[1066]

Such projects also meet difficulties, for example when the foreign assistance is taxed and not easily reimbursed.[1067] Like assistance for CW destruction, it is difficult to estimate how much funding is received, how it is spent and if it serves the purpose for which it was allocated.[1068]

There is a great deal of uncertainty about the results of international assistance. It is difficult to assess how it contributes to Russian CW disarmament and predict the extent to which it will bring Russia closer to the realization of its CWC obligations, without straying too far from the CWC deadlines. Any influx of money is positive, but it does not guarantee that the CWC obligations will be met in time.

CTR and similar programs greatly contribute to Russian CW disarmament; without this help Russia would struggle even more. However, there may be a discrepancy between the changing international security environment and the commitments for assistance. More precisely, as the last part of this study will show, there are now doubts about the contribution of CW disarmament to international security.

Conclusion

Russia ratified the CWC with great difficulty and compliance with the CWC's disarmament obligations was expected to be problematic. Because of the difficulties plaguing the disarmament of CW in Russia it was suggested that it should postpone its

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[1064] 'Diversion of Nuclear, Biological and Chemical Weapons Expertise From the Former Soviet Union' (2005) 35 (7), *Arms Control Today*, 5.
[1065] General Accounting Office Report, '*Weapons of Mass Destruction: Some U.S Assistance to Redirect Russian Scientists Taxed by Russia'*, GAO/NSIAD-00-154R, April 2000, 1,2.
[1066] Foreign Affairs Canada, *Chemical Weapons Destruction* (2005) <http://www.dfait-maeci.gc.ca/foreign_policy/global_partnership> at 31 January 2006. See also Lois R Ember, 'Matchmaking: State Department Aims to Link Former Soviet Arms Scientists with Western Firms' (2004) 82 (40), *Chemical and Engineering News*, 9 ; General Accounting Office Testimony, '*Weapons of Mass Destruction: U.S Efforts to Reduce Threats from the Former Soviet Union*', GAO/T-NSIAD/RCED-00-119, March 2000, 4.
[1067] General Accounting Office Report, '*Weapons of Mass Destruction: Some U.S Assistance to Redirect Russian Scientists Taxed by Russia'*, GAO/NSIAD-00-154R, April 2000, 1-6.
[1068] General Accounting Office Testimony, '*Weapons of Mass Destruction: U.S Efforts to Reduce Threats from the Former Soviet Union*'. GAO/T-NSIAD/RCED-00-119, March 2000, 8.

ratification and wait until it had a satisfactory destruction method that would enable it to meet its obligations before committing to the CWC.[1069] Russia eventually ratified upon the promise of foreign assistance to help it meet its disarmament obligations.[1070]

In spite of this condition the participation of Russia in the CWC was also questioned again after ratification. When it became obvious Russia could not meet its deadlines, it suggested that it would be wiser for Russia to follow its own destruction schedule.[1071]

Along with the USA, Russia was the main target for a CW ban. As the largest CW possessors these two countries have a special responsibility in the area of chemical disarmament.[1072] Therefore the participation of Russia in the CWC is crucial and strengthens the CW disarmament regime. The drawback of this is that the difficulties of Russia greatly undermine the CW disarmament regime.

This has serious implications for the CW disarmament regime. On the one hand the withdrawal of Russia from the CWC may be considered.[1073] This could be seen as a failure to enforce CWC provisions. On the other, if Russia cannot meet its disarmament obligations, a withdrawal may be better than a violation of the CWC.

The difficulties encountered by Russia in CW disarmament, in comparison with the US's own delays and difficulties, suggest that the CWC conditions and deadlines are unrealistic. It seems obvious that the CWC disarmament obligations, especially the deadlines, are not adapted to the specific Russian situation and will not be met. A question yet unanswered in the CWC relates to the consequences and subsequent response should Russia fail to disarm or withdraw from the CWC.

Russia is clearly the most challenging of the CW possessors for the CWC disarmament regime. It threatens its success and points to grave flaws in the regime. The CWC provides little answers for the difficulties of the disarmament of Russian CW. Finally, it questions the role of the OPCW in disarmament.

[1069] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 3 ; SIPRI *Yearbook of World Armaments and Disarmament* 1991, 97.
[1070] Ibid ; Derek Averre and Igor Khripunov, 'Chemical Weapons Disposal: Russia Tries Again' (2001) 57 (5), *Bulletin of the Atomic Scientists*, 57-63.
[1071] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-16.
[1072] The White House, '*Joint-US-Russian Statement on CW*' 21 March 1997, <http://dosfan.lib.uic.edu/acda/factshee/wmd/cw/helsinki.htm > at 24 September 2005, 1.
[1073] Chemical Weapons Convention, art 26 'Duration and Withdrawal'.

Chapter 5: The Chemical Weapons Disarmament Regime in the Current International Security Environment

Two trends can be identified which undermine the Chemical Weapons Convention (CWC) and indirectly affect the effective disarmament of Chemical Weapons (CW). Firstly the CWC evolves in a changing security environment characterized by new threats, namely Weapons of Mass Destruction (WMD) terrorism, WMD proliferation and state sponsorship of terrorism. Secondly, as a result of these threats the role of traditional, multilateral arms control instruments such as the CWC in this changing environment is questioned.

The United States is at the front of this tendency. It challenges arms control instruments and favours alternative tools to fend off the new threat. It has begun reducing the role of traditional arms control instruments like the CWC in its arms control policy.

The overall debate therefore opposes two views: the United States' and that of the supporters of a strong role for the CWC in international security. The analysis of both the United States' and of the supporters of arms control instruments' views seeks to clarify the role of arms control instruments, and especially the CWC's. Thus this part of this study examines the relationship between the changing security environment and the CW disarmament process. The aim of this study is to provide a critical analysis of how this tendency affects CW disarmament and to what extent. It does not attempt to assess the new threat but focuses on the tendency to question arms control instruments and its implications and consequences for CW disarmament.

This tendency is not a light matter; it questions the substance of arms control instruments, their role in international security and the existence of the institutions designed to enforce them. The United States' criticism of arms control instruments rightly highlights some weaknesses of the CW disarmament regime, but it also has serious consequences for the authority of such instruments and implications for the law of arms control.

Firstly the new threat which characterizes the changing security environment is identified, as well as the special situation of CW in this new environment.
The second part of this study focuses on the consequences and implications of this tendency, and on the questions it raises for the success of CW disarmament.

The outcome of this debate, examined in the third part of this study, is that the consensus that arms control, and especially disarmament, is the only way to ensure international security is challenged. The fourth part of this study concludes this analysis by highlighting the CWC's role in the current security environment and by proposing solution to strengthen this role.

Section 1: The challenge of the current international security environment for the chemical weapons disarmament regime

A. The Changing International Security Environment

A series of events, specifically the September 11, 2001 attacks, have resulted in a change of perception of the threats to international security and ensuing security priorities have shifted from former to new threat. It is looked into from the United States' perspective, whose arms control policy, as a superpower, influences arms control instruments. The United States identifies three trends affecting both its national and international security:

> Since the events of September 11, 2001, three scenarios pose significant threats to the security of the United States: (1) individual terrorists or terrorist groups; (2) nations harbouring or assisting terrorists; and (3) nations that produce weapons of mass destruction[1074]

As a result the United States is preoccupied with three international security issues, or a threefold threat, (1) terrorist acquisition and use of WMD, (2) proliferation of WMD by states and (3) states suspected of WMD proliferation which also sponsor terrorism.[1075] CW being a WMD they are therefore a key component of the new threat.

These three scenarios are intertwined, and various authors have established a link between WMD proliferation and terrorism.[1076] The United States and other

[1074] Robert A Zayac, 'United States' Authority to Legally Implement the Self-Defense Doctrines to Eradicate the Threat Posed by Countries Harboring Terrorists and Producing Weapons of Mass Destruction' (2004-2005) 29, *Southern Illinois University Law Journal*, 436.
[1075] Andrew Newman, 'The Disarmament of Iraq: WMD Nonproliferation Template?' (2004) 58 (2), *Australian Journal of International Affairs*, 221, 223; Zayac, n 1074, 433.
[1076] Michael Moodie, 'Confronting the Biological and Chemical Weapons Challenge: The Need for an "Intellectual Infrastructure"' (2004) 28 (1), *The Fletcher Forum of World Affairs*, 43, 47; Andrew Newman, 'Arms Control, Proliferation and Terrorism: The Bush Administration's Post-September 11 Security Strategy' (2004) 27 (1), *Journal of Strategic Studies*, 59, 70.

western states are preoccupied with the threat of WMD acquisition and use by terrorists.[1077] International organizations and institutions agree that this is a threat. For example, WMD proliferation is considered a threat to international peace and security by the United Nations Security Council.[1078] Similarly, the United Nations Advisory Board on Disarmament Matters[1079] and the United Nations High-Level Panel on Threat, Challenges and Change highlight the growing threat of WMD proliferation and terrorism.[1080] These institutions are mandated with identifying and proposing solutions to the current threats affecting international security.[1081] They now express and relay a general concern which agrees to a certain extent with that of the United States. The OPCW also acknowledges and stresses the reality and feasibility of the WMD threat, and especially of CW terrorist attacks.[1082]

Another characteristic of the new international security environment is the emergence and influence of new, non-state actors on the international scene, 'in the form of transnational terrorist and criminal organizations.'[1083] These new actors 'place an increasingly important role in areas where weapons are easily obtainable and internal conflicts exist,' thus heightening the threats relating to WMD.[1084] Non-states actors disturb the international security environment and traditional arms control instruments. The most preoccupying type of non-state actors is the transnational terrorist group.[1085]

Traditionally only states are actors in the international security environment; they are the only subjects of international law, hence 'arms control and disarmament addresses capacities and capabilities of states',[1086] and 'parties to international regulations are states'.[1087] In addition, historically, disarmament was intended as the

[1077] Andrew O'Neil, 'Terrorist Use of Weapons of Mass Destruction: How Serious is the Threat?' (2003) 57 (1), *Australian Journal of International Affairs*, 99.
[1078] United Nations Security Council, *'The Responsibility of the Security Council in the Maintenance of International Peace and Security'*, UN doc S/23500, 3046th meeting of the Security Council (1992); Moodie, n 2, 47.
[1079] Report of the United Nations Secretary-General, '*Work of the Advisory Board on Disarmament Matters*' GA Doc A/59/361, 59th sess, (2004)
[1080] Report of High-Level Panel on Threats, Challenges and Change, '*A More Secure World: Our Responsibility*' UN doc A/59/565, 2 December 2004, 40.
[1081] Marco Odello, 'Commentary on United Nations High-Level Panel on Threats, Challenges and Change' (2005) 10 (2), *Journal of Conflict and Security Law*, 231, 232-6.
[1082] Mashhadi, n 347, 1.
[1083] Dahinden, n 164, 271.
[1084] Ibid, 276.
[1085] Ibid, 271.
[1086] Ibid.
[1087] Ibid, 276.

solution against CW use by states in inter-state conflicts. Non-state actors on the other hand, are not subjects of international law and are therefore, theoretically, not bound by it.[1088] As a result arms control instruments like the CWC cannot address the most preoccupying actors in the current international security environment.

B. Chemical Weapons in the Changing International Security Environment

Traditionally CW are not distinguished from other WMD; they are usually considered together. This tendency is increasingly questioned by experts and academics. Previous analyses where WMD are regrouped under a single category are thought to explain the many disagreements over the assessment of the threat of WMD acquisition and use by non-state actors.[1089] Categorization of WMD has resulted in flawed assessments and therefore a flawed perception of the threat. It is therefore important to separate CW from other WMD. In light of their specificities and differences WMD can be compared but they should not be assimilated. In the current security context, authors consider each WMD separately and conduct distinct threat assessments.[1090]

In that regard it appears that CW stand out from other WMD in many respects; they both have a unique place in the law of arms control and pose a threat distinct from other WMD.[1091]

From an international legal perspective, CW differ from other WMD since they are subject to the first comprehensive, verifiable and legally-binding disarmament regime. They also occupy a particular position in the new security environment as a specific threat. Experts usually consider CW to be a choice weapon for terrorists, and to be easy to obtain and/or, proliferate.[1092] This fact is based both on experience and on the characteristics of CW.

Experience of terrorist attacks shows that CW were the weapon most often used by terrorists.[1093] As one author notes, it was not surprising that the first terrorist

[1088] Zayac, n 1074, 436
[1089] John Hart, 'Selected Issues Regarding International Terrorism' (Paper present at The Balance of Power in Europe 2035: Implications for Defence and Security, Solna, Sweden, 13-14 November 2003), 5.
[1090] O'Neil, n 4, 99-112
[1091] Hart, n 1089, 4; O'Neil, n 4, 103.
[1092] Mikhail Berdennikov, 'Chemical Weapons and Terrorism' (Paper presented at the Symposium on Terrorism and Disarmament, United Nations, New York, 25 October 2001), 1.
[1093] Katsva Maria, 'Russian Chemical Weapons: Proliferation or Destruction?' (2002) 15 (1), *Journal of Slavic Military Studies*, 1-2.

attack was a chemical rather than a nuclear or biological attack.[1094] The main terrorist incident involving CW is the 1995 sarin attack in the Tokyo subway by the apocalyptic cult Aum Shinrikyo, which resulted in a dozen death and thousands of wounded.[1095] Other terrorist attacks or attempts clearly show the preference for chemical and explosive devices,[1096] for example in the cases of the Oklahoma City bombing in 1995 and the Bali and Istanbul bombings.[1097]

CW are also considered a likely terrorist weapon because they are easy to obtain from vulnerable CW stockpiles and it is said that they can be produced with relative ease.[1098] Acquisition of CW is possible from stockpiles, which are feared to be both 'targets and loot for terrorists.'[1099] When it comes to acquisition by production, some authors argue that radiological weapons are easier to use and that biological weapons are easier to produce than CW. However, most often CW are believed to be the likeliest terrorist weapon because they are easier to produce than any other WMD.[1100] This is explained by the access to chemical warfare materials and technology, because of the dual-use of chemical warfare materials and because of the currency of such materials.[1101]

In light of the special link that is claimed between terrorism and CW, some authors believe that not enough attention is given to CW.[1102] Although CW are deemed attractive to terrorists, most of the attention is focused on nuclear terrorism.[1103] This can be criticized since there is a consensus that nuclear weapons are much harder to obtain or produce than chemical weapons.[1104] CW occupy a distinct place in the current international security environment, which calls for an attempt to determine the scope of the new threat in relation to CW.

[1094] Alex P Schmid, 'Chemical Terrorism: Precedents and Prospects' (2001), *OPCW Synthesis*, 1-4.
[1095] Ibid, 2-4.
[1096] Ibid; 'Disarmament and Non-Proliferation Regimes' (Occasional Paper No 8, Department for Disarmament Affairs, 2004), 25.
[1097] Glenn Hess, 'Congress Revisits Farm Chemical: Federal legislation Would Regulate Ammonium Nitrate, Which has Become a Weapon of Choice for Terrorists' (2006) 84 (6), *Chemical and Engineering News*, 20-23.
[1098] Disarmament and Non-Proliferation Regimes' (Occasional Paper No 8, Department for Disarmament Affairs, 2004), 25.
[1099] Pogorely, n 178, 90.
[1100] O'Neil, n 4; Pogorely, n 178, 85.
[1101] Schmid, n 1094, 2-3.
[1102] Pogorely, n 178, 84-5, 98.
[1103] Ibid, 85.
[1104] O'Neil, n 4.

C. The Scope of the New Threat in Relation to Chemical Weapons

An OPCW expert points to the fact that terrorists do not need CW to conduct chemical attacks and that CW proliferation is not limited to movements of CW.[1105] The use of toxic chemicals on unprotected civilians causes similar damage to the use of a CW, and the transfer of toxic chemicals is equivalent to chemical proliferation.[1106] Chemicals do not need to be weaponized, the release of toxic chemicals is sufficient to carry out an attack.[1107] It implies that the scope of the proliferation and terrorist threat extends further than CW only and includes all toxic chemicals and their precursors. Because of the dual-use nature of the materials required for chemical warfare, the CW threat is widespread. The disarmament of CW therefore plays an important role in preventing the diversion and use of CW, yet disarmament is powerless concerning the misuse of non-scheduled chemicals.

Most CW precursors have such dual-use and are widely used in several chemical industries.[1108] As a result efforts against the CW threat must cover a wide range of activities and facilities, most of which are peaceful and authorized by the CWC.[1109]

The extent of activities which must be controlled makes the enforcement of the chemical non-proliferation regime very difficult.[1110] Attention is therefore called, for example, by the United Nations Advisory Board on Disarmament Matters, to the need to safeguard facilities handling dual-use materials.[1111] Another, related drawback of the dual-use of chemicals is that sometimes the distinction between peaceful, authorized activities and prohibited military activities is difficult.[1112] Since many chemical activities can be related to the threat of chemical warfare, the scope of the CW threat is far-reaching and extends well beyond existing CW.

The disarmament of CW is one of many measures against the threat; it must be corroborated with CWC non-proliferation efforts. The focus of this study is limited to

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[1105] Berdennikov, n 1093, 1.
[1106] Ibid.
[1107] Ibid, see also John Hart, 'Nuclear, chemical and Biological weapon-related trends' (paper presented at 'the Balance of Power In Europe 2035: Implication for Defence and Security', Solna, Sweden, 13-14 November 2003).
[1108] Ibid, 33-34; Urs A Cipolat, 'The New Chemical Weapons Convention and Export Controls: Towards Greater Multilateralism?' (1999-2000) 21, *Michigan Journal of International Law*, 393, 405.
[1109] Berdennikov, n 1093, 3.
[1110] Hart, n 1089, 5.
[1111] Report of the United Nations Secretary-General, '*Work of the Advisory Board on Disarmament Matters'* GA Doc A/59/361, 59th sess, [7] (2004).
[1112] Litman, n 34, 33; Cipolat, n 35, 408.

existing CW stockpiles, which are dealt through disarmament efforts. The full scope of the CW threat: proliferation and acquisition of CW by other means than acquisition from existing stockpiles, is not examined.

However, this distinction is relevant in this study and non-proliferation measures are a major part of the CWC. The non-proliferation regime can be summarized briefly. It includes the regulation of transfers in chemicals, exports and import controls and the declaration, verification and monitoring of peaceful chemical activities authorized under the CWC.[1113]

D. The Challenges to the Chemical Weapons Disarmament Regime in Light of the Current International Security Environment

Two issues arise from the current security environment and from the specific place CW occupy in it. The first is the general tendency, led mostly by the United States, to question and criticize the role of traditional arms control instruments like the CWC. It is expressed in the United States' new arms control policy, in which traditional arms control instruments have a reduced role. The second issue comes from the fact that the United States favours alternative arms control instruments over traditional instruments like the CWC to ensure security against the new threat.

1. The Tendency to Criticize and Question Arms Control Instruments.

The role of arms control instruments, namely multilateral disarmament and non-proliferation treaties is challenged and diminished by the United States. It has become 'sceptical of traditional Cold War concepts and of arms control', against the new threat.[1114] As Newman notices, 'arms control and disarmament traditionally understood- is increasingly seen by the US as ponderous at best and counter-productive at worst'.[1115] The United States' position is that before the new threat, such instruments are powerless and have only a limited role.

The tendency to question arms control instruments ranges from scepticism to open criticism. For example, the United States suggests that these instruments should 'face today's threats, not yesterday's'.[1116] In another example, Newman clearly identifies this tendency concerning the WMD proliferation threat: 'the Bush

[1113] Cipolat, n 35, 393-443
[1114] Newman , n 1076, 69.
[1115] Ibid, 59.
[1116] Mark A Groombridge, 'US Views on Arms Control' (Occasional Paper # 6, Department for Disarmament Affairs, 2002), 23.

administration … appreciates the danger of WMD proliferation but has little faith in the ability of multilateral non-proliferation regimes to halt further spread'.[1117] Arms control instruments are still deemed important but not sufficient and inapt at guarantee national and international security.[1118] Finally, referring to the Geneva Process, Moodie highlights that 'the old ways and old tools have not worked-at least not very well-in recent times', which justifies a new approach to arms control.[1119]

The United States' tendency to question arms control instruments is expressed in various instances. For example, it is expressed in the denunciation of traditional arms control instruments such as the Comprehensive Test-Ban Treaty or the proposed protocol to strengthen the BWC.[1120] This was made obvious in the 2001 statement of then United States Secretary for arms control, John Bolton, concerning the protocol to strengthen BWC.[1121] His virulent statement explicitly condemns the inability of traditional arms control instruments to detect violation and the damage they cause by allowing proliferators to pursue illegal activities without risks.[1122] Furthermore the United States has named several countries suspected of violating their arms control treaty obligations.[1123] The United States then named countries suspected of violating their treaty obligations. This tendency does not relate specifically to the CWC, which is perhaps even less affected than other arms control instruments (for example the BWC). However, as a traditional arms control treaty the CWC is also indirectly questioned and the value of CW disarmament for international security doubted.

As a result of this tendency the United States has reduced the role of arms control instruments; they are perceived as less important and reliance upon such instruments has been diminished.[1124] The United States also distinguishes between states and non-state actors, by which is implied terrorists. The fact that the United States is mostly preoccupied with the threat from non-state actors supports the diminished emphasis placed on arms control instruments. This tendency marks a break with the practice of relying on such instruments to ensure international security,

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[1117] Newman, n 1075, 228-9.
[1118] Meng-Kin Lim, 'Hostile Use of the Life Sciences' (2005) 353(21), *The New England Journal of Medicine*, 2214-5.
[1119] Moodie, n 2, 46
[1120] Moodie, n 2, 44;
[1121] Statement of Under Secretary John Bolton to the Fifth Review Conference of the Biological Convention, 19 November 2001, < http://www.opbw.org/ >at 26 July 2006.
[1122] Ibid.
[1123] Wade Boese, 'U.S Names Alleged Treaty Violators' (2005) 35 (8), Arms Control Today, 36-37.
[1124] Groombridge, n 1116, 29.

and with efforts to strengthen such instruments.[1125] As a result such instruments are undermined and by extension so is the CW disarmament regime. This tendency can be seen as a characteristic of the current international security environment, in which the role and authority of traditional instruments are reduced.

a. The United States' arguments in support of its criticism of arms control

To support its position, the United States' main arguments are that such instruments are not complied with and fail to address the new threat. Another criticism is the fact that such instruments are not flexible. They therefore consider these instruments to be inappropriate to the current security environment.

Firstly the United States highlights that arms control instruments are not complied with by member states and that it is impossible to enforce them. It distinguishes, among member states of arms control instruments, those which comply with their legal obligations and those which do not. Among the latter some are even suspected of seeking WMD, of having WMD which could fall into the hands of terrorists and of sponsoring terrorism. These states are of great concern to the United States. More specifically, the US is preoccupied with states suspected of using participation in arms control agreements as a legitimate cover while they conduct prohibited activities.[1126] The US suspects that some member states of the OPCW seek or possess CW.[1127]

The United States' argument about non-compliance suggests that it assimilates a threatening behaviour with non-compliance with arms control instruments. It openly criticizes the inability of arms control regimes to detect such misuse and the subsequent violations of arms control obligations.[1128] It also accuses other states of being unwilling to enforce compliance mechanisms when such misuse takes place.[1129]

In that respect arms control regimes are believed to be counter-productive since they cannot uncover violations, which increases the threat by allowing would-be proliferators to pursue illegal activities without fear of reprisals or sanctions.

[1125] Dahinden, n 164, 264-7.
[1126] Groombridge n 1116, 28-30.
[1127] Pogorely, n 178, 85.
[1128] Newman , n 1076, 61.
[1129] Newman, n 1075, 228-9.

With regard to CW, this criticism can be extended to disarmament obligations. States which do not comply with their disarmament obligations and are not sanctioned remain de facto CW possessors. These concerns reflect a criticism of the CWC's verification regime rather than its disarmament obligations. In the author's view although the verification regime may fail to uncover these new threat, it is efficient enough not to provide cover these new threats.

b. The Resulting United States' Arms Control Policy

The tendency to criticize arms control instrument is the corollary of the United States' current arms control policy. Its criticism results in a policy which no longer relies solely on traditional arms control instruments for ensuring its security. Instead it is characterized by preventive and pre-emptive actions (sometimes involving the use of force) and by reliance on other tools.[1130] New tools include, for example:

> proactive efforts to deter and defend against the threat before it exists…; prevent proliferators from acquiring WMD materials, technologies and expertise; and effective consequence management to respond to the effects of WMD use[1131]

Unfortunately CW disarmament appears to have a very limited, if non-inexistent, role in the current United States arms control policy. None of the tools envisaged focus on existing arms control instruments or disarmament measures. With regard to CW disarmament, it appears to be more appealing to the United States to prevent a state from acquiring weapons than to disarm known stockpiles.[1132] Such a policy does not favour CW disarmament and the success of the CWC disarmament regime. It suggests that either disarmament is not adapted to the threat, or that it is adapted but not given enough attention.

According to the United States' position, arms control instruments are not adapted to the current international security environment. This is already suggested with the distinction between 'today's and yesterday's threat'.[1133] It should be remarked, however, that such criticism is often reiterated by the United States, but

[1130] Newman , n 1076, 59
[1131] Newman , n 1075, 225
[1132] Ibid, 230.
[1133] Groombridge, n 1116, 30.

hardly ever justified. How exactly arms control instruments fail to contribute to security is not explained in detail in the United States' arms control policy.

The United States' acts upon its position on arms control instruments; it is concretely reflected in reduced international cooperation and funding for CW disarmament.[1134] Sufficient funding is vital for the success of CW disarmament.[1135] Currently, funding for 'chemical demilitarization'- for securing CW stockpiles and to prevent the 'brain drain' of former weapons scientists, is being increased instead of being spent on disarmament activities.[1136] The lack of support for CW disarmament is also expressed in the late payments to the OPCW and open criticism of the OPCW's direction,[1137] which eventually led to the removal of the Director General in 2001.[1138] The United States does not show any enthusiasm for the completion of CW disarmament. The sense of urgency which spurred the conclusion of the CWC, caused by the use of CW by Iraq in the 1980's, is missing now.

2. Alternative Instruments to Ensure Security in the Current Context: the Secondary Role of Disarmament.

The United States' new arms control policy reflects a shift of interest from traditional arms control instruments to 'new tools' for ensuring security[1139] and it is largely based on such alternative instruments to ensure its national and international security. It does not suggest abandoning all traditional arms control efforts; it expresses its commitment to such instruments and reiterates its support for multilateralism.[1140] However, the United States also supports and encourages alternative means of ensuring security with new instruments which it now considers as, if not more important than traditional arms control instruments.[1141] It is unclear whether the United States intends to replace arms control instruments with alternative tools; such tools are now a central part of its arms control policy.

Since they are considered to be more adapted to the current threat, these alternatives could threaten the success of the CW disarmament regime. The purpose

[1134] William Huntington, 'Bush Plans Changes in Threat Programs' (2006) 36 (2), *Arms Control Today*, 37-8.
[1135] Chapter 3.
[1136] Huntington, n 62, 37-8.
[1137] Groombridge, n 1116, 29-30.
[1138] Ana Stanic, 'Bustani v. Organization for the Prohibition of Chemical Weapons' (2004) 98, *American Journal of International Law,* 810-814; see also Chapter 2 on the OPCW 2001 internal crisis.
[1139] Groombridge n 1116, 30.
[1140] Ibid, 27.
[1141] Ibid, 30.

of these instruments is addressing and reducing the immediate WMD proliferation and terrorism threats.[1142] As opposed to arms control instruments, which are traditionally treaty-based,[1143] these instruments are politically-binding arrangements based on a voluntary and limited participation. They are often informal with few rules, allowing for flexibility. In the area of CW the main alternative instrument against the new threat is the Australia Group (AG). The AG is an informal arrangement, grouping 40-mostly western-countries, to regulate the exports of listed dual-use chemicals and biological materials.[1144]

In the author's view such alternatives arrangements can be criticized on a number of grounds, and they undermine the CWC. Firstly, such arrangements and especially the AG, weaken confidence in the CWC.[1145] Many CWC member states consider that the AG directly clashes with the CWC's development, cooperation and trade objectives.[1146] It is also criticized by developing countries for contradicting some of the CWC's core principles, namely equal treatment and non-discrimination, guarantees offered by the CWC. Many commentators support this position. For example, the Indian representative at the CD during the CWC negotiations reminded the delegates that:

> The legal arguments based on the principle of sovereignty, which justify the continuation of the Australia Group or of national export control measures which violate the spirit of the CWC, have dealt a severe blow to the confidence placed in industrialised States as honourable negotiating partners.

He also points out another severe drawback that the AG can have on adherence to the CWC:

> Why would signatory States not threatened by chemical weapons adhere to the CWC, which places additional burdens on their civilian chemical industries, if the

[1142] Lois R Ember, 'A Success Story: the Multinational Australia Group Celebrates 20 years of Stemming the Spread of Weapons' (2005) 83 (18), *Chemical and Engineering News*, 30.
[1143] Michie, n 223, 346.
[1144] Pogorely, n 178, 85.
[1145] Cipolat, n 35, 393-443; Prakash Shah, 'International Co-Operation in Chemical Trade: Has the Chemical Weapons Convention Helped? (2001), *OPCW Synthesis*, 1-3.
[1146] Shah, n 69, 1-3.

> benefits of free international trade and cooperation, unhampered by the Australia Group or similar discriminatory arrangements, are not also available to them?[1147]

In this regard, developing states expected the AG to be terminated upon the entry into force of the CWC:

> Developing States were united in their belief that, as soon as they agreed to subject themselves to the dictates and the stringent conditions of the CWC, they should not be subject to any other arbitrary regimes such as the Australia Group.[1148]

Finally, maintaining the AG is also in contradiction with the objective of universal adherence to the CWC. The AG and similar alternatives are not universal nor is their universal or even broad support sought.

It can be noted that such restricted participation is counterproductive to the United States' official position according to which universality and multilateralism are essential against the new threat.[1149] The United States both promotes universal adherence to existing arms control instruments against the new threat, and at the same time discards and replaces these instruments with alternative instruments based on selective participation. It highlights an inherent contradiction between the goals sought by the US, and also indicates that this current practice undermines their commitment to unilateralism.

Secondly, such alternatives clearly lack the legitimacy and credence traditional arms control instruments have. They have no verification mechanisms, which is a serious limitation since it is generally agreed that in order for disarmament to be effective, it must be verified.[1150] They are also criticized because they are selective and are believed to skirt international law.[1151]

Generally these alternative instruments do not benefit from a broad support; rather, they are seen as dubious measures imposed by a minority of states.[1152] Also, these alternative tools do not appear to be more adequate to deal with non-state actors

[1147] Ibid.
[1148] Ibid, 1-2; Shah, n 69, 88; see also Cipolat, n 35, 396-7.
[1149] Groombridge, n 1116, 30.
[1150] Daniel Feakes, 'Evaluating the CWC Verification System' (2002) 4, *Disarmament Forum*, 11. See also Hyltenius, n 13, 8-9.
[1151] Jofi Joseph, 'The Proliferation Security Initiative: Can Interdiction Stop Proliferation?' (2004) 34 (5), *Arms Control Today*, 6-13.
[1152] Ibid.

than traditional tools are. Finally these non-proliferation endeavours may have a negative impact on CW disarmament because there is a risk that more attention is given to such arrangements and less on complying with existing disarmament commitments. It is the author's view that such arrangements question the security gains from disarmament. In light of these facts they do not appear advantageous in the current security environment; as Berdennikov points out, 'there is no need for a coalition against the CW threat, it already exists.'[1153]

However, this criticism may be tempered; one use of alternative instruments such as the AG can be envisaged. Extended to disarmament purposes, these politically-binding and informal measures could act as confidence-building measures or even speed up CW disarmament while avoiding the traditional, formal and lengthy negotiating process of multilateral disarmament instrument.

However, such an alternative would be limited by the lack of authority of such instruments. Since they are voluntary and not legally-binding they cannot be enforced. Furthermore they do not meet transparent and efficient verification requirements. Today, from a disarmament perspective these arrangements are useless; none pursues, attempts, supports or contributes to disarmament in any way, when disarmament is believed to be a necessary complement to non-proliferation.[1154]

It can be suggested that instruments complementing the CWC disarmament regime are acceptable to the extent that they support its role. However, instruments which overlap but conflict with the CWC are not desirable. The CWC expressly authorizes and encourages bilateral or multilateral arrangements, if they concur with and do not compromise the CWC disarmament objectives.[1155] It is unfortunate that there is no such alternative seeking CW disarmament. Instead, the tendency to question existing instruments and corroborate them with alternative tools negatively affects CW disarmament.

Section 2: The Consequences and Implications of the United States' Criticism for the Chemical Weapons Disarmament Regime

The United States' criticism of the role of arms control instruments has numerous consequences. While this criticism rightly highlights some weaknesses of these

[1153] Berdennikov, n 1093, 5.
[1154] Report of the United Nations Secretary-General, '*Work of the Advisory Board on Disarmament Matters*' GA Doc A/59/361, 59th sess, [29], (2004).
[1155] Chemical Weapons Convention arts 4 para 13 and 5 para 16.

instruments, it also undermines them and negatively affects the disarmament of CW. This section examines how the CW disarmament regime is affected by this tendency and what the CW disarmament regime can do to meet this threat.

Generally this criticism raises questions about the role of CW disarmament in the changing security environment. Is CW disarmament compromised or slowed by the changing security environment? Or is this challenge an incentive to improve the existing regime? If the challenge from new instruments negatively affects the regime, then to what extent does it do so? Can the impact of the threat on CW disarmament be measured at all? The new threat has serious implications for CW disarmament.

Throughout this section the tendency led by the United States is countered and the role of CW disarmament in the changing security environment is asserted. Again the United States is again at the front of the criticism of the role of arms control and disarmament instruments in international security. As a key player in arms control its criticism cannot be easily turned aside.

The first part of this section focuses on an urgent and hands-on issue raised by vulnerable CW stockpiles, which expose the threat of CW acquisition and use from existing and declared stockpiles. The question of CW pending disarmament is crucial and encompasses the matter of the new threats in the current security environment. It asks whether CW disarmament can remedy the new threat and be effective in the changing international security environment. This matter directly confronts the CW disarmament regime with the new threat. The second part of this section focuses on more general questions and implications that the United States' tendency raises for arms control, and by extension, CW disarmament.

A. The Threatening Situation of Chemical Weapons Stockpiles Pending Disarmament.

The new threat highlights a major weakness of the CW disarmament regime, namely the situation of CW stockpiles that are pending destruction. They are thought to be vulnerable and threatening and a majority of states is concerned with this matter.[1156] This concern is not new and was raised during the CWC negotiations.[1157] However, it is now directly linked to the terrorism and proliferation threat since vulnerable CW

[1156] Hunt, n 160, 523, 527.
[1157] Ibid.

stockpiles are subject to theft, attack, diversion and eventual misuse before disarmament is completed.

The prevailing opinion on the matter is that terrorists will not wait until disarmament is finished to attempt to acquire CW.[1158] The CWC is criticized, mostly by the United States, for being powerless and offering poor guarantees against this risk. There is a view that the CWC provides enough safeguards to ensure the safety of CW stockpiles until their destruction,[1159] but it is generally thought that existing measures to secure and monitor CW stockpiles until their destruction are insufficient.[1160] Such criticism further adds to the view that disarmament is inadequate for addressing current threats.

Existing measures to secure CW include the obligation to secure stockpiles and the prohibition to move declared CW before their destruction except to a destruction facility.[1161] The CWC in fact obliges member states to secure CW; however, states have much leeway to implement this obligation:

> Not later than when submitting its declaration of chemical weapons, a State Party *shall take such measures as it considers appropriate* to secure its storage facilities and shall prevent any movement of its chemical weapons out of the facilities, except heir removal for destruction' (emphasis added). [1162]

Another key measure is on-site inspections of declared CW stockpiles.[1163] The purpose of the initial inspection is to verify that stored CW correspond to the declarations to the OPCW; routine inspections ensure no CW is diverted, removed and that CW destruction is being carried out.[1164]

Unilateral efforts have also been made to secure CW stockpiles and reduce their vulnerability, with the intention to eliminate the potential threats of proliferation, diversion and terrorist use. Finally bilateral efforts also attempt to secure CW, mostly through the Cooperative Threat Reduction program (CTR). A part of the CTR funds

[1158] Mashhadi, n 347, 1-5;
[1159] Hunt, n 160, 527.
[1160] Ibid.
[1161] Chemical Weapons Convention art 4 para 4.
[1162] Chemical Weapons Convention, Verification Annex, Part IV (A) para 7.
[1163] Chemical Weapons Convention art 4 paras 3-5.
[1164] Chemical Weapons Convention, Verification Annex, Part IV (A), para 41. See also Hunt, n 160, 526 and Feakes, n 1150, 11, 16.

for chemical demilitarization is spent on securing Russian CW stockpiles.[1165] Other bilateral efforts include accounting and securing abandoned CW, for example Japanese CW abandoned in China.[1166]

In the author's opinion, to a certain extent, this concern and the resulting criticism seem well-founded; CW are vulnerable during the length of time that it takes to destroy them. This concern is borne out by the initial reluctance of some CWC drafters to oblige states to declare the possession of CW and the location of their stockpiles. They feared that the knowledge of CW stockpiles would make them vulnerable or cause temptation to seize them.[1167]

The criticism that CW stockpiles are vulnerable and threatening appears justified in some cases, for example regarding former Soviet CW which are poorly guarded and secured. Also, the CWC is mostly silent on the situation of CW stockpiles until their destruction. Finally, the fact that CW are usually considered a likely terrorist weapon only reinforces this concern.

The CWC thus appears to be a feeble instrument against this specific threat. Disarmament is a fool-proof measure because it is definitive and irreversible;[1168] unfortunately the benefits of disarmament are not immediate and therefore appear unsuitable against the current security concerns. It is also the view of the author that this grey, temporary situation of CW until their disarmament may be acknowledged as a deficiency in the CWC disarmament regime.

However, if this criticism is sensible, two drawbacks can be identified. First, how to remedy the risk from vulnerable CW stockpiles remains an unanswered question; no alternative is offered to resolve or improve the situation of CW before their destruction. Furthermore is not certain, in the author's view, that securing CW stockpiles is a fool-proof measure against the threat. Until disarmament is completed, the situation of CW is a *statu quo*. Secondly, as the case of Russian CW has shown, the disarmament of CW is indirectly affected by this criticism since efforts focus on securing CW stockpiles instead of disarming them.

It can be concluded that there is neither adapted effort nor suitable solution to remedy this weakness. It is the view of the author that disarmament efforts should not

[1165] General Accounting Office Report, '*Additional Russian Cooperation Needed to Facilitate U.S Efforts to Improve Security as Russian Sites'*, GAO-03-482, March 2003, 10, 58.
[1166] Pandy R Sinish and Joel A Vilensky, 'WMDs in our Backyard' (2005) 19 (4), *Earth Island Journal,* 31-34.
[1167] Trapp, 'Geneva Negotiations on Chemical Weapons' in *SIPRI Findings*, n 131, 345.
[1168] Chapter 1, the consensus on CW disarmament.

be undermined or abandoned for the sake of attempting to secure CW stockpiles. Instead this potential threat should spur disarmament efforts rather than replace or delay them with temporary measures such as securing stockpiles.

Finally this weakness is not specific to CW; it is bound to occur with any disarmament task undertaken. Vulnerability to theft or illicit sale is an inherent risk of weapon possession and an unavoidable inheritance of the arms race, against which unfortunately disarmament cannot achieve immediate results.

B. The Outcome of the New Threat on Chemical Weapons Disarmament: Questioning the Role of Arms Control Instruments in the Current International Security Environment and the Subsequent Impact on Chemical Weapons Disarmament.

Questioning the role of arms control instruments and their ability to ensure international security in the current security environment is a serious matter with numerous implications. It doubts the authority and challenges the usefulness of such instruments for international security. It results in a debate about the extent to which arms control instruments contribute to international security, and which indirectly affects the CW disarmament regime.

1. The Implications for Arms Control Instruments of the United States' Criticism and How it Affects Chemical Weapons Disarmament.

The tendency to question arms control instruments raises questions concerning the role of arms control instruments and whether instruments like the CWC are adapted to the current security environment. Can existing instruments reduce the new threat and if so, what is the role of disarmament against this threat? Is disarmament the solution to the current threat, and can such a threat be resolved with an international legal regime?

These questions hold great interest from a disarmament and international legal perspective. The role of disarmament for security needs clarification; these questions determine whether disarmament is useful for security, and if disarmament should be carried out with international legal tools. They also highlight whether there is a need to pursue traditional arms control tools, or on the contrary seek new disarmament tools.

Firstly, the United States' position sheds doubts on the adaptability of the CW disarmament regime to new circumstances, and by extension questions the flexibility of traditional arms control instruments. Only amendment of the CWC's Annexes is possible,[1169] and the modification process appears lengthy and complicated.[1170] On the one hand, this is justified by a special need to ensure stability and preserving equality of rights and obligations.[1171] On the other, arms control remains a highly moving field subject to both changes of technical and political nature. CWC members have only limited leeway to adapt the CWC to the new threat or changing circumstances.

The difficulty of modifying treaties and their limited flexibility to adapt to changing circumstances is characteristic of traditional arms control instruments.[1172] For example, beyond the authorized extension mechanism the CWC final disarmament deadlines cannot be modified when it is obvious that at the current destruction pace they cannot be expected to be met. This implies that the formal modification procedures- and by extension the formal, multilateral negotiating process of arms control instruments- do not offer sufficient flexibility.

In that regard in the author's opinion the Geneva Process can be criticized in an area such as disarmament, which in the case of CW now clearly requires adjustments. Unfortunately it can be commented that the OPCW review conferences do not seem preoccupied with these matters. It can also be suggested that perhaps it is not the most suitable negotiating process for disarmament treaties, as it is formal and lengthy whereas disarmament is a subject-matter calling for technical negotiations. For example, Bastanov, the Russian representative at the CD during the CWC negotiations, pointed out that the CWC negotiations lasted over two decades and that by the time they were concluded some provisions negotiated earlier did not correspond to the more recent context.[1173] He also suggested then that 'the world cannot afford to wait another 20 years for another militarily significant global arms control treaty', since the 'agenda is both wide and urgent.'[1174] The Geneva Process does not appear to fit well with the urgent and time-consuming task of disarmament.

Unfortunately this task clashes with other priorities of the Geneva Process, namely broad representation and participation of states, the democratic process, and

[1169] Krutzsch and Trapp, n 332, 240.
[1170] Chemical Weapons Convention, art 15 paras 2-5.
[1171] Krutzsch and Trapp, n 332, 240-1.
[1172] Newman , n 1076, 67.
[1173] Bastanov, n 128, 34.
[1174] Ibid, 39.

allowing inputs from non-state actors concerned with arms control negotiations.[1175] It can be concluded that successful and adaptable arms control instruments either require another elaboration and modification process than the formal and lengthy Geneva Process, or that means to modify and adapt a treaty must be found other than via the procedures provided by the treaty. In this regard, in light of the new threat, the criticism about the lack of flexibility of arms control instruments is accurate. However, even if the CWC was modified to adapt to new circumstances, the lack of definition of terrorism would remain a great obstacle impeding modification.[1176]

Secondly, this tendency also questions, indirectly, the usefulness of ongoing CW disarmament efforts. What should and can be done if, as the United States' arms control policy suggests, an arms control instrument becomes useless or is no longer adapted to its environment? What should be done if an arms control instrument is deemed obsolete by its member states and especially in the current case, by a state with as much weight as the United States has? Should states no longer seek CW disarmament? Could this justify abandoning disarmament efforts and violating treaty obligations? If an arms control treaty no longer serves its purposes what is the impact for the existing instrument?

These questions are hypothetical only, since CW disarmament continues to play a major role in security. In addition, since states have ratified the CWC and are therefore legally obliged to disarm, this abandonment of the treaty is, legally, not an option. However, these questions have significant implications. Disarmament tools are thought not to be adapted to the current threat. This questions the basic principle according to which disarmament ensures security. If the basic principle is no longer accepted as true, could the CW disarmament regime simply become null and void and be abandoned? The resulting, major drawback for the success of CW disarmament is that the link between security and disarmament is increasingly tenuous; the arguments justifying CW disarmament are implicitly being challenged. Another drawback is that if arms control and disarmament instruments like the CWC are no longer supported and have little authority, a door is opened to violations and withdrawals from such instruments. The current tendency bears the risk that disarmament instruments are broken, or even denounced.

[1175] Moodie, n 2, 46.
[1176] Hart, n 1089, 5.

Concerning the challenged link between disarmament and security, the United States' criticism implies that disarmament does not ensure security, both because the original instruments are not adapted and because they are not well observed. It also appears to distinguish between support of the CWC, a traditional arms control and disarmament instrument, and reduction of the CW threat, as if the two objectives were conflicting. The view that disarmament is not seen as a means to ensure security explains why proposed alternatives do not include any disarmament provisions. It justifies the criticism of poor enforcement and the lack of support of arms control instruments. However it is the author's view that security and disarmament should be realized concomitantly; they are not opposite but on the contrary complementary. Furthermore, both concerns can be solved with the successful implementation of the CWC, as opposed to undermining it with alternative instruments.

Unfortunately the current US approach has serious and probably long-term drawbacks. Diminished reliance, loss of confidence and the subsequent reduction of support for the CWC damage the credibility of international, legally-binding arms control instruments. It is also a disincentive for participation in such regimes. Weakened confidence in such instruments also reduces the incentive to comply with them, and in turn non-compliance, diminishes confidence. Overall this criticism shows that treaties are not immune from political considerations, especially when they lose support from their key sponsor.

2. Assessment of the Tendency to Question the Role of Arms Control Instruments in International Security

An assessment of the United States' position allows us to measure its impact on CW disarmament. In the author's opinion the United States' criticism on the suitability of arms control instruments against the new threat rightly underlines, to a certain extent, some limitations of arms control instruments. However, the intent of this assessment is not to determine whether the United States' new arms control policy is correct or not.

Firstly the United States' position is supported by the fact that disarmament is not always perceived as a positive contribution to international security. The UNIDIR lists six points opposing the benefits of disarmament, which concur with the questioning of arms control and disarmament agreements:

> First, the arguments in favour of arms limitations are based on a set of assumptions about the relation between armament and war which may not be true. Second, because successful arms limitations imply a minimum mutual interest in the avoidance of war, such measures are altogether inappropriate in cases where this is absent. Third, because successful arms limitations imply at least tacit mutual cooperation … such measures are going to be more effective in times of decreasing tensions when they are less needed, and less effective in times of rising tensions when they are most needed. Fourth, arms limitations may fuel rather than cool down arms races … or they may merely redirect arms races as countries steer their military preparations towards non-regulated areas. Fifth, if arms limitations are intended to attenuate military rivalries, their rationale loses impetus in a context in which either there are no military rivals or it is unclear who the military rivals are. Finally, arms limitations may well be afflicted by a vicious paradox, namely, that in making war potentially less destructive, they might also make it potentially more likely[1177]

With regard to CW it is has been suggested that the fourth argument applies to CW disarmament. CW disarmament has a limited scope, and instead of increasing security it could simply create a shift from the use of CW to the use of another category of weapons, namely a redirection towards nuclear weapons and with it an increased risk of nuclear war.[1178] The last point also concerns CW; CW disarmament, by reducing the magnitude and scale of war may in fact increases the chances of war.[1179]

Secondly, questioning the role of arms control instruments highlights the distinction between states and non-state actors and the distinction between states parties to arms control instruments which comply with them, and states parties which do not. The first distinction is crucial since states are the only subject of international law, while non-state actors are not directly addressed by international law.[1180] Unfortunately the new threat mostly comes from non-state actors. Therefore, theoretically, the CWC is powerless against this threat; it does not address non-state actors and does not mention terrorism.[1181] If non-state actors had CW, the OPCW could not verify and enforce disarmament obligations. This supports the United

[1177] Tulliu and Schmalberger, n 8, 5, 10-11.
[1178] Richard L Russell, 'Iraq's Chemical Weapons Legacy: What Others Might Learn from Saddam' (2005) 59 (2), *The Middle East Journal*, 187-209.
[1179] Ibid
[1180] Zayac, n 1074, 433-460.
[1181] Jose M. Bustani, *Opening Statement by the Director-General of the OPCW*, OPCW Executive Council, 26th session.

States' criticism that arms control instruments are not suitable to address the new threat. However, this statement overlooks some basic facts which tone down the distinction between state and non-state actors and the threat from non-state actors. Namely, non-state actors are likely to get CW from or be supported by states. Therefore, action against states indirectly deals with the threat. Finally, it can be commented that the US appears to bypass the national level and act directly against the threats to its national security.

Concerning the issue of states parties to arms control instruments which are suspected of not complying with them, the United States' position also points out a redundant concern in international law. It is often said that the United State's position is biased by its own national security interests;[1182] however, it rightly suggests that if states parties to arms control instruments do not comply with their obligations, these states do not belong in these treaties.

Venezuela, during earlier UNGA discussions on chemical and biological warfare, pointed out that states refusing to take part in treaties (i.e. the Geneva Protocol) did not necessarily reflect an intention to act against it.[1183] Put in perspective with the United State's current concerns about non-compliance, it can be suggested that states 'out' of treaties, e.g. not parties to it, are preferable to states 'in' the treaties but not complying with their obligations. This suggestion depends on whether arms control treaties can detect violations and eventually sanction states which do not comply, therefore enforcing their obligations. According to the United States' position, arms control instruments fail to do so.

In the author's view this suggestion is not desirable, as it implies that arms control treaties cannot be enforced. It would also further undermine the authority of arms control instruments and reflect a lack of confidence in them. This suggestion would have great consequences if acted upon. For example, Russia would have to withdraw from the CWC since it obviously cannot fulfil its disarmament obligations; by remaining a member it would undermine the CWC's scheduled disarmament obligation. However, it also suggests that if a state party is suspected of a violation, a mechanism excluding this state from the benefits of the treaty is called for. For example Russia could be deprived of certain OPCW benefits until completion of its

[1182] Newman , n 1076, 61.
[1183] SIPRI, *The Problem of Chemical and Biological Warfare: CB Disarmament Negotiations, 1920-1970*, (1971) vol 4, 219.

disarmament obligations. The United States' preoccupation with non-compliance also partially coincides with the issue of non-participation in such instruments. Non-participation or participation and non-compliance are both seen as a threatening behaviour and by extension, thought to contribute to the current threat.

The author acknowledges but does not agree with the tendency led by the United States to undermine arms control instruments and their primary role in international security. Some criticisms of arms control instruments rightly point out some weaknesses of and challenges to the CW disarmament regime and arms control instruments in general. These aspects of the United State's position deserve consideration because they highlight the difficulties of enforcing arms control instruments and point out some limitations to these instruments: mainly, arms control instruments are not meant to address non-state actors and they are not very flexible in a rapidly changing security environment. However, questioning the substance of arms control agreements and the resulting lack of confidence in these instruments seems counterproductive. In the author's view it does not, in any way, contribute to international security, yet no suitable alternative to replace or improve the CWC is proposed. In that respect, Newman points out that it is 'far easier to remove than replace a regime with a functioning and viable alternative'.[1184] The existing CW disarmament regime is the only legally-binding, viable solution against CW in the long-term that we currently have; it should not be discarded or replaced. The next section introduces arguments opposing the US position, minimizes some aspects of the new threat and attempts to analyze the contribution of CW disarmament to international security.

Section 3: Arms Control Instruments Have a Crucial Role in the Current International Security Environment: the Arguments Supporting the Role of Arms Control Instruments

The intention of this section is to present the counter-arguments to the United States' position on arms control instruments with a specific focus on the arguments concerning the role of the CWC. This analysis seeks to clarify the role of disarmament in the current security environment. There are errors in the way the current threat to international security is perceived and acted upon. There are also

[1184] Newman, n 1075, 233.

mistakes regarding the ability of existing arms control regimes and especially the CW disarmament regime, to remedy this threat.

A. Questioning the Role of Arms Control Instruments in the Changing Security Environment is not Widely Supported and Appears to be Misguided

This analysis attempts to invalidate the idea that the new threat justifies abandoning arms control instruments, and shows that the adopted arms control policy is reprehensible. There are a number of justifications for this different approach. Firstly the United States' position is not shared by the bulk of the international community. There is an opposite view that arms control instruments play an important role even in the changing security environment. According to this view existing arms control instruments, especially the CWC, even though they are not intended for the current security environment, can ensure security against the new threat.[1185] Secondly, it is also justified by the fact that the CWC is legally-binding and therefore its disarmament obligations should not be challenged by political considerations.

Commentators see different solutions to the CW threat and especially for ensuring the CW terrorism threat never materializes. Not all authors see disarmament as the primary tool against CW terrorism; some authors favour non-disarmament measures. However, there seems to be a consensus that disarmament has a crucial role to play against the new threat. The author shares the view that disarmament is a key step against the new threat, and may be the best solution available.

In order to counter the United States' position two arguments can be put forward. Firstly, is appears that the threat is not always well assessed-or assessed at all and that it may be exaggerated. This analysis first diminishes the magnitude of the perceived threat to a more realistic level. By minimizing the threat, criticism against existing arms control instruments can be put in perspective.

Secondly, it is believed that arms control instruments, can be efficient in the current security environment. This is particularly the case with disarmament instruments like the CWC, which has the necessary tools to ensure security against the new threat. Disarmament has a specific role in that respect. It can be concluded from this view that the tendency to question arms control instruments is counter-

[1185] Hunt, n 160, 523-536

productive; there are solutions to guarantee international security from threats without compromising the role and reduce the authority of existing arms control instruments.

B. The New Threat Lacks Assessment and Tends to be Exaggerated.

Most commentators agree that the new threat is not well assessed or assessed at all; some of its aspects can be minimized, others discarded. There is also a tendency to exaggerate the threat beyond realistic proportions. The threat is threefold: fear of WMD proliferation by states, of WMD proliferation and of use by terrorists, and of state sponsorship of terrorism, which includes support for WMD acquisition. The lack of threat assessment, especially concerning terrorist acquisition and use of WMD, is criticized by experts.[1186] Existing assessments focus on the question 'when' this threat is going to materialize, instead of 'if' it can materialize at all, resulting in an alarmist tendency to magnify the WMD terrorist threat. As Schmid points out, 'there is a big gulf between the "theoretical possibility" and the "operational reality" of chemical and bacteriological terrorism. The debate about terrorism and WMD has been one where exaggeration has been the order of the day.'[1187] Unfortunately little analytical and technical background is provided to justify the likelihood of terrorist acquisition and use of WMD. Finally, this threat, and especially WMD terrorism, is perceived as increasing, although there is no explanation for this tendency.[1188]

Some authors attempt the difficult task of assessing the feasibility of terrorist acquisition and use of WMD; they present likely scenarios of such occurrence to remedy the lack of threat assessment.[1189] The study of WMD acquisition by O'Neil proposes and assesses such scenarios of WMD acquisition and use by terrorists.[1190] Based on a technical assessment of WMD production, the study minimizes the chances of WMD production by terrorists. This is justified by the difficulty of acquiring WMD materials and by the complex technology required to weaponize them. As a result even though CW are thought to be the most likely weapon for terrorists, their acquisition and use in great quantities remains uncertain. This view is shared by other experts, based on previous experience of CW terrorism. They argue that CW production is risky for the people involved, costly and technically

[1186] Berdennikov, n 1093, 1-5; O'Neil, n 4, 99-101.
[1187] Schmid, n 1094, 2.
[1188] Newman, n 1075, 225; Hart, n 1089, 1.
[1189] Hart, n 1089, 2, 4
[1190] O'Neil, n 4, 97-100.

challenging.[1191] It can be concluded that even though CW terrorism is not impossible, this threat can be minimized. Another aspect of the new threat, state-sponsored WMD terrorism, is discarded as an unlikely scenario, as it presents too many risks for a state,[1192] and because so far there is no evidence of state sponsorship.[1193]

A likely scenario, however, is theft or diversion of CW from existing stockpiles.[1194] If CW production is as difficult as experts suggest, then it can be assumed that theft of CW from existing stockpiles is the most tempting and next alternative to acquire CW. This is also the scenario which is relevant from a disarmament perspective, and against which the success of CW disarmament is crucial. It is the view of the author that this last scenario is the most probable regarding the threat of CW acquisition and use by terrorists. This is supported by the vulnerable situation of CW stockpiles. For example, O'Neil points out the weak security and tracking systems for WMD in the former SU, but these weaknesses are not limited to the former SU.[1195] However, even this scenario is not well assessed. Although the OPCW and CWC member states conduct exercises involving scenarios of CW use, there is no scheme involving CW acquisition from existing stockpiles. There is therefore, to the author's knowledge, neither an OPCW document nor any official study on the feasibility or likelihood of CW acquisition or diversion from declared stockpiles and therefore no sound assessment of this threat.

It can be concluded that the magnitude of the new threat can be questioned and minimized; there is widely shared view that it is exaggerated, which can be linked to the lack of credible threat assessment.[1196] There is clearly a need for a better assessment of the CW threat.[1197] This view implies that CW proliferation and terrorism is not as urgent a threat as is suggested by the United States. Reducing the magnitude of the threat suggests that efforts should focus less on counter-terrorism measures and more on arms control mechanisms. Finally, if CW stockpiles are the most pressing aspect of the new threat then disarmament efforts should not be held back but on the contrary be pursued more actively. Therefore both the perceived threat and the response are, in the author's opinion, flawed.

[1191] Schmid, n 1094, 3.
[1192] O'Neil, n 4, 104-5.
[1193] Newman, n 1075, 225.
[1194] O'Neil, n 4, 104.
[1195] Ibid.
[1196] O'Neil, n 4, 100; Newman, n 1075, 225.
[1197] Moodie, n 2, 51-4.

C. The Chemical Weapons Convention Has the Necessary Tools to Effectively Address the New Threat

The view opposing the United States' tendency to question arms control instruments is examined here. Among the CWC provisions that may prove efficient against the new threat, a distinction is made between non-disarmament and disarmament measures, and emphasis is placed on the latter. It also seeks to heighten the role of CW disarmament in the current security environment.

1. Non-Disarmament Measures

There are numerous non-disarmament measures in the CWC considered 'relevant' against the threat and in particular CW terrorism.[1198] Authors identify, in various orders of importance, the CWC non-proliferation regime; transfers of chemicals; verification and monitoring measures, which includes declaration of civilian and military facilities and inspections; implementation of penal legislation by member states to criminalize behaviours prohibited under the CWC, (hereinafter law enforcement measures)[1199]; and assistance and protection measures, through national assistance programs.[1200] Other tools contributing to the success of the CWC against the new threat are intelligence,[1201] cooperation with other international organizations,[1202] challenge inspections, although this implementing measure is not used,[1203] and law enforcement cooperation.[1204]

These measures have different degrees of usefulness against the CW proliferation and terrorism threat. Some authors put more emphasis on law enforcement measures, others on non-proliferation and monitoring measures; they appear to be the main means against the threat of CW terrorism.[1205] Law enforcement measures, especially the obligation to adopt penal legislation against all individuals or entities under a state party's jurisdiction or control and which act in violation of the CWC, are considered necessary.[1206] Commentators expect to see the criminalization

[1198] Berdennikov, n 1093, 2.
[1199] Chemical Weapon Convention art 7 para 2.
[1200] Ibid, 2-4; Hunt, n 160, 523, 525-533; Mashhadi, n 347, 1-4; Berdennikov, n 1093, 4.
[1201] Schmid, n 1094, 1-4.
[1202] Berdennikov, n 1093, 4.
[1203] Ibid, 2-3
[1204] Hunt, n 160, 523, 529.
[1205] Berdennikov, n 1093 1-5; Shah, n 69.
[1206] Mashhadi, n 347, 1-5; Berdennikov, n 1093, 3; Jose M. Bustani, *Opening Statement by the Director-General of the OPCW*, OPCW Executive Council, 26th session.

of violations of CWC provisions by all member states, and international cooperation in enforcing such legislation.[1207] In that respect, Berdennikov compares and considers the CWC to be similar to conventions against terrorism.[1208] To a certain extent, this tendency is supported by the UN Advisory Board on Disarmament matters, which recommends 'that WMD proliferation be rendered punishable under international law, and perpetrators personally responsible.'[1209] It can be remarked that this is consistent with the more general tendency to criminalize offences corresponding to violations of international law committed by individuals. Non-proliferation measures are another key aspect of the CWC against the new threat, as they are 'depriving access to CW.'[1210] Their aim is to monitor closely all chemical activities to ensure no CW is produced.[1211] It is the view of the author that the CWC has indeed many tools to effectively address the new threat. However, most of these measures, except for non-proliferation measures, are not preventive but rather a response should the CW terrorism or proliferation threat materialize.

2. Disarmament Measures Have a Crucial Role Against the New Threat

Not all experts see disarmament as the primary tool against CW terrorism. However, all authors supporting the role of the CWC place a special emphasis on the need to disarm CW and agree with the fact that the elimination of CW is necessary against the new threat. At the very least disarmament must corroborate other measures against the new threat.

Disarmament of CW effectively addresses all aspects of the new threat; it has both a positive impact on CW terrorism and on non-proliferation. Concerning the terrorist threat, disarmament makes less CW available and more difficult to acquire; it reduces the chances of terrorist acquisition and diversion of CW through theft or attacks.[1212] Bustani, then Secretary-General of the OPCW, clearly states the link between CW disarmament and it role against terrorism: 'the worldwide elimination of chemical weapons – is directly relevant to the solution of this urgent task [supposing chemical terrorism]'. As suggested before, if stockpiled CW are considered the most

[1207] Ibid.
[1208] Berdennikov, n 1093, 3.
[1209] Report of the United Nations Secretary-General, '*Work of the Advisory Board on Disarmament Matters*' GA Doc A/59/361, [9, 15, 17] 59th sess, (2004).
[1210] Mashhadi, n 347, 1-5.
[1211] Hunt, n 160, 527-8.
[1212] Ibid, 526.

pressing threat, being vulnerable to terrorist theft and diversion, then disarmament has an increased role against CW terrorism: 'In particular, the timely destruction of chemical weapons in declared possessor States Parties would simply eliminate the risk of the theft or diversion of such weapons.'[1213] In that respect the United Nations Department for Disarmament Affairs is even more explicit; in its recommendations it states that 'The possibilities of chemical weapons being subject to theft manifest the importance of destroying all stockpiles of chemical weapons as soon as practicable.'[1214] Concerning the role of CW disarmament against the threat of terrorism it can be concluded, as Bustani points out, that 'where chemical terrorism is concerned, the international community is not starting with a tabula rasa.'[1215]

The disarmament of CW also plays an important role in the goal of non-proliferation since it ensures that existing CW are not spread, thus addressing the issue of horizontal and, as Pogorely describes it, 'internal' proliferation.[1216] Firstly, existing means to secure CW stockpiles, even though deemed insufficient, guarantee, in the author's view, that there is no proliferation of CW from declared stockpiles. In particular, verification of destruction with on-site inspections and permanent monitoring ensures that no CW is diverted before and during the destruction process.[1217] Secondly, once CW destruction is completed, which has not taken place so far, a final inspection and a final declaration take place, before destruction of the CW destruction facility.[1218] In its recommendations the United Nations Department for Disarmament Affairs also highlights this link: 'achieving chemical weapons disarmament is fundamental to guaranteeing nonproliferation.'[1219]

The support for CW disarmament is shared by CWC member states and by international organizations. The United Nations Department for Disarmament Affairs recommends the completion of CW disarmament as soon as possible, and believes that the completion of this task can greatly reduce the new threat.[1220] The United Nations High-Level Panel on Threats also recommends that 'all states should expedite

[1213] Mashhadi, n 347, 2.
[1214] 'Disarmament and Non-Proliferation Regimes' (Occasional Paper No 8, Department for Disarmament Affairs, 2004), 27.
[1215] Jose M. Bustani, *Opening Statement by the Director-General of the OPCW*, OPCW Executive Council, 26th session.
[1216] Pogorely, n 178, 85, 89.
[1217] Hunt, n 160, 527.
[1218] Chemical Weapons Convention, verification Annex Part IV (A) para 69.
[1219] 'Disarmament and Non-Proliferation Regimes' (Occasional Paper No 8, Department for Disarmament Affairs, 2004), 27.
[1220] Ibid.

the scheduled destruction of all existing chemical weapons stockpiles by the agreed target date of 2012'.[1221] Supporters of the CWC role in the changing security environment reiterate the importance of disarmament against the new threat. This view reflects both support of arms control instruments in general and the role of CW disarmament in the international security agenda. For example, Wilkinson places emphasis on the need to use measures of arms control and disarmament, and on the 'absolutely significant role for disarmament'.[1222] Ambassador Toth calls attention on the role of preventive measures 'more related to the arms control and disarmament field'.[1223] Berdennikov's position is even more self-explanatory on the matter of arms control: 'The focus of politicians around the world has to return to those instruments that could help them fight this new battle.'[1224] Finally, Goldblat highlights the clear 'need to continue the arms control process' in the changing security environment.[1225]

The outcome of a successful CW disarmament is the complete absence of CW. In turn this means the elimination of the risk of CW use and a great reduction of potential acquisition of CW by rogue actors. Disarmament is irreversible and definitive; it provides the best assurance against all aspects of the new threat and addresses this threat. It is also the view of the author that the verification of disarmament by the OPCW offers sufficient assurances to ensure that no declared CW is subject to proliferation. Finally, other arguments support the role of disarmament. For example, it contributes to reducing the scope and effects of internal conflicts.[1226] Therefore disarmament can be considered the best solution against the threat. Beyond the current preoccupation, the successful and timely disarmament of CW corresponds both to the success of the CWC and to the resolution of the CW threat, both old and new.

There is a middle ground view between questioning the role of arms control instruments and supporting their role in the current security environment; the view that such instruments are an appropriate tool against the new threat.[1227] There is some

[1221] Report of High-Level Panel on Threats, Challenges and Change, '*A More Secure World: Our Responsibility*' UN doc A/59/565, [125] 2 December 2004.
[1222] Paul Wilkinson, 'Chemical Weapons and Terrorism' (Paper presented at the Symposium on Terrorism and Disarmament, United Nations, New York, 25 October 2001), 1-5.
[1223] Tibor Toth, 'Chemical Weapons and Terrorism' (Paper presented at the Symposium on Terrorism and Disarmament, United Nations, New York, 25 October 2001), 1-5.
[1224] Berdennikov, n 1093, 5.
[1225] Goldblat, n 4, 245.
[1226] Ibid; Wilkinson, n 152; Toth, n 153.
[1227] Dahinden, n 164, 271.

truth in this view and it is supported by the fact that the CWC was not intended to be a convention against terrorism.[1228] The CWC is a disarmament instrument in the first place; it was not specifically drawn up to deal with the new threat.[1229] This is supported, for example, by the lack of any mention of 'terrorism', 'non-state actors' or 'proliferation' in the text of the CWC.[1230] In the author's view this view may be acceptable to a certain extent, yet it can be criticized on the ground that even though the CWC is not meant to deal with the new threat, it nevertheless has the necessary tools to do so. Also, the CWC seems to have adapted to the current international security environment, and since there is not better alternative yet, it can be concluded that even though the CWC is not an entirely appropriate tool against the current threat, it is not useless and can contribute to reducing it.

3. The Chemical Weapons Convention can Extend to Non-State Actors

In response to the United States' argument that arms control instruments do not address and are powerless against non-state actors, Mashhadi argues that the CWC extends to non-state actors. He maintains that the CWC provisions apply further than CW use in inter-state conflicts, 'to any use of toxic chemicals and their precursors for chemical weapons purposes, whether internal or external.'[1231]

This suggests that the CWC applies to intra-national activities. The United States' argument can also be countered with the CWC law-enforcement provisions which require member states to criminalize CWC violations committed by individuals or entities under member states' jurisdiction or control.[1232] In that respect Mashhadi points out that:

> the enforcement mechanism of the Convention is not limited to prohibited activities undertaken by States Parties. This mechanism extends to any natural or legal person within the States Parties' jurisdiction or control.[1233]

To a certain extent, the implementation of these provisions by CWC member states affects individuals via national penalisation systems. This provision appears to

[1228] Hunt, n 160, 523.
[1229] Ibid, 527.
[1230] Bustani, n 104.
[1231] Mashhadi, n 347, 1-5.
[1232] Mashhadi, n 347; Chemical Weapons Convention art. 7 para 1.
[1233] Mashhadi, n 347, 1-5.

broaden the scope of the CWC from member states to non-state actors and at the same time to states not members of the CWC.[1234] The same can be said of the CWC non-proliferation provisions, especially those concerning transfers in the chemical sector. If every potential chemical-warfare activity is covered by the CWC, its scope is not limited to the activities of member states. Even though the OPCW is powerless in states not members and cannot receive declarations or conduct inspections in these states, the non-proliferation network seems tight enough that no major chemical activity takes place without notice, as is the intent. By making CW unavailable, the CWC disarmament provisions extend to non-state actors.[1235] It can be concluded that the CWC reaches and affects non-state actors via its wide scope over all chemical activities, and because it addresses individual behaviours. The CWC therefore addresses the threat related to non-state actors, which reinforces its role against the new threat.

Furthermore, supporters of the CWC and OPCW's role in the current security environment also express the idea that the OPCW has a mandate against the new threat, and especially against CW terrorism. Bustani, the OPCW's former Director-General, highlights that:

> the OPCW is thus equipped with appropriate means whose proper and coordinated utilisation can significantly reduce the attractiveness of the chemical option as a terrorist tool, and can thus dissuade terrorists from resorting to this weapon of mass destruction. Our Organisation has the necessary mandate and unique expertise in this area.

He concludes: 'The Convention therefore assigns to the OPCW a clear mandate and role where the combating of chemical terrorism is concerned.' [1236]

Different justifications are offered to support this view. This mandate comes from the CWC provisions dealing 'with materials which terrorists may acquire, or may wish to acquire, and use as chemical weapons'[1237] and from the disarmament provisions. The OPCW mandate is also derived from its resources and expertise in the

[1234] Mashhadi, n 347, 1-5.
[1235] 'Disarmament and Non-Proliferation Regimes' (Occasional Paper No 8, Department for Disarmament Affairs, 2004), 27.
[1236] Mashhadi, n 347, 1-5.
[1237] Berdennikov, n 1093, 1.

chemical field.[1238] Also, it is pointed out that 'the CWC does provide an international legal foundation for the fight against chemical terrorism'.[1239]

This mandate allows the OPCW to act against the new threat. Such a mandate entitles it to a function, and even a responsibility against the new threat.[1240] It also implies that the OPCW has authority on the matter: 'Such a mandate gives the OPCW legitimacy and authority to pursue efforts against terrorism and non-proliferation. The OPCW role against the new threat is derived from this mandate.'[1241] This view is shared by other CW experts: 'The OPCW is not a police agency. Our contribution to the cause of fighting chemical terrorism flows from the mandate of the Chemical Weapons Convention.'[1242] In the author's view a mandate also suggests that the text of the CWC and the role of the OPCW are interpreted and used beyond what the CWC drafters intended. The CWC may not be very flexible; however, it appears to be adaptable to new circumstances and to the current international security environment. Such a mandate also implies that the CWC is sufficient and therefore there is no need to replace or corroborate it with alternative instruments. Finally, the OPCW mandate is believed to extend to non-state actors, thus opposing the view that the terrorist threat is not addressed by arms control instruments such as the CWC.[1243]

Section 4: The Chemical Weapons Convention Must be Implemented to be Effective Against the New Threat

The CWC has the tools and a mandate to deal effectively with the new threat. However, in order to accomplish this goal it is pointed out that the existing regime must be used and implemented fully. Unfortunately, the CWC suffers from implementation difficulties.

A. The Full Implementation of the Chemical Weapons Convention

Supporters of the CWC's role in the current security environment highlight the need to implement it fully, comply with it and also strengthen it. The call for the implementation of the CWC is justified in many respects. It is generally believed that

[1238] Bustani, n 104.
[1239] Ibid.
[1240] Mashhadi, n 347, 1-5.
[1241] Ibid.
[1242] Berdennikov, n 1093, 2.
[1243] Ibid.

the full and immediate implementation of the CWC ensures security, [1244] therefore achieving its intended goal. The CWC can be effective only if it is used to its full potential. Dahinden points out that 'even more relevant than negotiations … is the implementation of existing treaties'; it is 'the essential part in achieving security benefits'.[1245] He also expresses the idea that 'implementation must become the new priority.' In light of the current security environment, full implementation and compliance with the CWC is even more necessary. Its role against the new threat is conditional upon full implementation and compliance with it: 'By ensuring the full and effective implementation of, and full compliance with, the Convention, the OPCW can help to significantly reduce the risk of chemical terrorism.'[1246] Disarmament plays a significant role in that respect and there is also much emphasis on the need to implement and comply with disarmament obligations:

> The destruction of chemical weapons stockpiles and production facilities is a central aspect of the implementation of the Chemical Weapons Convention. We have to sustain the full-fledged implementation of the Chemical Weapons Convention within the crucial parameters of disarmament … that must prevail in the implementation of its provisions.[1247]

The OPCW former Director-General also highlights the link between the resolution of the new threat and the need to implement the CWC disarmament provisions:

> The latent virulence of the threat posed by international terrorism adds a strong element of urgency to the need to successfully achieve chemical disarmament … and, for this, efficient verification of compliance is, of course, of undisputed essence.[1248]

The success of the CWC against the new threat therefore depends on its implementation and on compliance with it, and especially its disarmament

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[1244] Dahinden, n 164, 272.
[1245] Dahinden, n 164, 272-3.
[1246] Mashhadi, n 347, 1-5; see also 'Disarmament and Non-Proliferation Regimes' (Occasional Paper No 8, Department for Disarmament Affairs, 2004), 25.
[1247] Ibid; Jose M. Bustani, *Opening Statement by the Director-General of the OPCW*, OPCW Executive Council, 26th session.
[1248] '*Monitoring Chemical Weapons Destruction: Present Realities and Future Challenges'* Excerpts from the Statement by the OPCW Director-General Inter-Parliamentary Conference, Strasbourg, France, 20-21 November 2003.

obligations. The United Nations Department for Disarmament Affairs also recommends 'strengthening and fully utilizing the existing regime.' [1249]

Implementation of the CWC is also viewed as a means to 'preserve the acquis' of arms control regimes against attempts to weaken those acquis and therefore the CWC.[1250] This requires fully using the CWC enforcement mechanisms and in particular challenge inspections. Challenge inspections are meant to resolve concerns about non-compliance. If used they could resolve the United States' concerns about states parties suspected of not complying with their obligations, and the subsequent criticism of arms control instruments. In turn it would be an assurance that the CWC can detect violations and be enforced. Unfortunately challenge inspections and other CWC enforcement measures are not implemented, which has drawbacks. Feakes expresses the idea that the longer its takes to use challenge inspections, the harder it becomes to use them, and the 'political threshold for requesting one' increases.[1251] The lack of use also weakens 'the challenge inspection mechanism on the other elements of the CWC verification system'.[1252] According to the same author, 'public accusations of non-compliance' which are not followed by CWC enforcement mechanisms also undermine challenge inspections. In the author's view, the fact that challenge inspections have never been requested also leaves an unused potential to strengthen the CWC and resolve concerns about non-compliance. This extends to CW disarmament as well, since all chemical facilities may be inspected on challenge.[1253] Therefore it appears wrong not to use challenge inspections, as they would both enforce the CWC obligations, including disarmament obligations, strengthen the CWC regime by fully implementing its enforcement mechanisms and perhaps avoid the United States' criticisms. In the author's view there is much to gain by implementing challenge inspections, as well as other sanctions or enforcement mechanisms provided in the CWC. The United States would have more support using such enforcement mechanisms rather than using unilateral actions or alternative instruments. Therefore, existing sanctions should be used as a priority.

In the author's view other benefits can be expected from implementing the CWC. It would see the accomplishment for the first time of effective disarmament of

[1249] 'Disarmament and Non-Proliferation Regimes' (Occasional Paper No 8, Department for Disarmament Affairs, 2004), 25.
[1250] Dahinden, n 164, 273.
[1251] Feakes, n 1150, 19.
[1252] Ibid.
[1253] Chemical Weapons Convention art 9 para 8.

an entire category of WMD under international supervision. Overall it would also increase the strength and credibility of arms control instruments.

Implementation requires using mechanisms provided by arms control instruments.[1254] The implementation of the CWC, in addition to enforcement measures, comprises a wide range of measures since the CWC covers a broad scope of activities. Its supporters emphasize different measures the implementation of which is seen as crucial for its success. For example, Mashhadi favours the implementation of law enforcement mechanisms to remedy the terrorist threat; it is thought it would 'deter terrorist uses of chemical weapons.'[1255] It entails, among other things, the adoption of national implementation laws, cooperation, legal assistance and the establishment of a national authority.[1256] Other authors favour the implementation of assistance and protection measures against CW use, of non-proliferation measures,[1257] or of monitoring and verification measures.[1258] The implementation of other, non-disarmament implementation measures is also called for, and especially, universality of the CWC is thought necessary to strengthen it and succeed against the new threat.[1259] The implementation of disarmament obligations requires that member states declare their stockpiles, adopt a destruction program and allow the OPCW inspectors to monitor the destruction of stockpiles.[1260] In the author's view, since disarmament is the favoured solution for ensuring security from the CW threat, implementation of disarmament measures is the most important goal and should be pursued with greater priority over other implementation measures.

B. Difficulties Affecting the Implementation of the Chemical Weapons Convention

All authors concur with the idea that the CWC must be strengthened and implemented fully, and especially its disarmament provisions. This goal supports the role of CW disarmament in the current international security environment. Unfortunately, implementation difficulties can be identified.

[1254] Dahinden, n 164, 273.
[1255] Berdennikov, n 1093, 4.
[1256] Mashhadi, n 347, 1-5.
[1257] Ibid; Berdennikov, n 1093, 2.
[1258] 'Disarmament and Non-Proliferation Regimes' (Occasional Paper No 8, Department for Disarmament Affairs, 2004), 27.
[1259] Jose M. Bustani, *Opening Statement by the Director-General of the OPCW*, OPCW Executive Council, 26th session.
[1260] Chemical Weapons Convention, arts. 1, 3, 4 and 5.

The main implementation problem relates to the general struggle of CWC member states to implement it. Implementation of the CWC is very difficult and many of its provisions are poorly implemented.[1261] The same authors calling for the full and immediate implementation of the CWC provisions also deplore the fact that the CWC is poorly implemented and that a majority of member states have not implemented key provisions or are delayed in doing so. Dahinden points out that 'There is still an important gap between legally agreed regulations…and the implementation of agreements.'[1262] Five years after the entry into force of the CWC, only less than half of its member states had informed the OPCW of their implementing legislation and administrative measures to implement the CWC.[1263]

Implementation difficulties occur with law-enforcement measures, assistance and protection, declarations (both of civilian and military chemical facilities and activities), transfers of chemicals and disarmament. Law-enforcement provisions are particularly difficult to implement; member states fail to adopt the necessary penal legislation and cooperate, and they struggle to provide information on the establishment of their National Authorities.[1264] Another example, the implementation of assistance and protection measures, cooperation and funding for assistance and protection, is also disappointing. Five years after the entry into force of the CWC only a handful of member states (less than 25%) had informed the CWC of their protection programs.[1265] Also, the CWC voluntary fund for assistance was poorly provided for.[1266] The foreseeable result is that a majority of states 'do not have a national capability to deal with chemical weapons attacks or with chemical weapons terrorist acts.'[1267]

Concerning disarmament obligations, difficulties have occurred with the initial and annual declarations of CW stockpiles. It should be reminded that CWC member states only have 30 days following the entry into force of the CWC to declare their CW stockpiles.[1268] However, as of December 2004, 93% of the CWC 167 member

[1261] Berdennikov, n 1093, 3-4.
[1262] Dahinden, n 164, 272.
[1263] Ian R Kenyon, Kersten Gutschmidt and Ottorino Cosivi, 'Legal Aspects and International Assistance Related to the Deliberate Use of Chemicals to Cause Harm' (2005) 214, *Toxicology*, 249, 251; Berdennikov, n 1093, 3.
[1264] Feakes, n 1150, 13-4; Berdennikov, n 1093, 3.
[1265] Berdnnikov, n 20, 4
[1266] Ibid.
[1267] Ibid.
[1268] Chemical Weapons Convention, art 3 para 1.

states had submitted their initial declaration.[1269] The implementation of destruction obligations is also delayed and still suffers great difficulties. CW possessors have not adopted the mandatory destruction plans or have adopted them late.[1270] For example, Russia only adopted its definitive CW destruction programme in 2001.[1271]

CW possessors which have acceded the CWC after its entry into force (Albania and Libya) have encountered delays and 'operational' difficulties. As a result their destruction programs are delayed and these states were granted extensions of intermediate deadlines.[1272] Almost 10 years after the entry into force of the CWC, its destruction obligation is very poorly implemented. As of December 2004, the largest two CW possessors had destroyed 1.94 and 31.73% of their CW stockpile, respectively, instead of the initially scheduled 45%.[1273] As of 2006, 'over 19% of the world's declared stockpile of approximately 70,000 metric tonnes of chemical agent have been verifiably destroyed', and 30% of chemical munitions destroyed.[1274] It should be reminded that the intended final destruction deadline is 2012 (after being extended five years from the initial 2007 deadline).

There are numerous causes explaining the difficulties in implementing the CWC. The lack of adoption of the necessary national implementing legislation keeps CWC member states from implementing CWC provisions. For example, this lack affects the obligations to declare chemical activities and transfers of chemicals.[1275] Declarations of chemical activities are therefore incomplete, delayed and obtained with great difficulty by the OPCW.[1276] Declarations of transfers between CWC member states is imprecise and often do not match.[1277] Concerning disarmament

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[1269] *Report of the OPCW on the Implementation of the Chemical Weapons Convention in 2004*, tenth session of the Conference of the States Parties, 7-11 November 2005, OPCW document C-10/4 (2005), 4.
[1270] Ibid, 6; Jose M. Bustani, *Opening Statement by the Director-General of the OPCW*, OPCW Executive Council, 26th session.
[1271] Jose M. Bustani, *Opening Statement by the Director-General of the OPCW*, OPCW Executive Council, 26th session.
[1272] *Report of the OPCW on the Implementation of the Chemical Weapons Convention in 2004*, tenth session of the Conference of the States Parties, 7-11 November 2005, OPCW document C-10/4 (2005), 6.
[1273] Chemical Weapons Convention, Verification Annex Part IV (A) para 17.
[1274] OPCW, 'The Chemical Weapons Ban: Facts and Figures', (2006) <http://www.opcw.org/factsandfigures/index.html#CWDestructionUnderWay> at 8 August 2006.
[1275] Berdennikov, n 1093, 4; Feakes, n 1150, 13-6.
[1276] Feakes, n 1150, 15-6.
[1277] Berdennikov, n 1093, 4.

provisions, however, difficulties are mostly of a technical and financial nature. CW destruction is time and money-consuming and technically difficult.[1278]

More generally, difficulties to implement the CWC can also be attributed to the complexity of the CWC implementation requirements, which can be linked to the proximity with the civilian chemical industry. Difficulties can be explained by this closeness with authorized civilian chemical activities and the resulting 'dual-use' nature of the convention. Implementation difficulties can also be linked with the decreasing political interest in implementing and enforcing arms control instruments. Poor implementation can be largely attributed to the diminished political interest in arms control instruments once they enter into force.[1279] Berdennikov explicitly points out that the implementation of the CWC is not a political priority and incites very little political interest.[1280]

Conclusion

The CW disarmament regime is confronted to a changing international security environment, in which the role and authority of traditional arms control instruments like the CWC are challenged. Their ability and adequacy to face the new threats to international security are questioned. Alternative instruments deemed more suitable to ensure security are envisaged, with the risk that traditional arms control instruments benefit from less support and that their role is diminished.

Flaws can be identified in this tendency, regarding the foundations and assessment of the new threats to international security, the faults attributed to traditional arms control instruments and to the CW disarmament regime. Furthermore the criticism of existing tools is not followed with alternatives that are able to replace the existing CW disarmament regime. Although it is acknowledged that the CW disarmament regime has weaknesses and there are implementation difficulties, it remains the central instrument for the control of CW. It remains, so far, the only disarmament instrument capable of achieving effective results.

[1278] Chapter 3, 'the difficulties of Chemical Weapons Disarmament'.
[1279] Dahinden, n 164, 267; Berdennikov, n 1093, 5.
[1280] Berdennikov, n 1093, 5.

General Conclusion

CW are a recognized threat to international security. The use of CW is banned and in order to enforce this ban and to remedy this threat permanently, a sophisticated disarmament regime attempts to eliminate CW. This comprehensive disarmament regime is embodied in the 1997 CWC, which is the main instrument for the legal control of CW. The control and disarmament of CW remains a specific and obscure area in public international law and arms control.

This study has attempted a comprehensive analysis of the CW disarmament regime. Although a variety of disarmament instruments have been envisaged, the CW disarmament regime studied is founded on the CWC. This analysis has examined whether the regime, and more specifically the CWC, can achieve the effective disarmament of CW. The intended result of this regime is the total and effective disarmament of CW.

The study examined whether and if so, how the resulting international law achieved effective results, eschewing a theoretical analysis of how the CW disarmament regime relates to and is integrated in public international law and the law of arms control. The practical aspects of CW disarmament were favoured over the hypothetical extrapolations of the CW disarmament regime, either for the disarmament of other weapons or towards the codification and institutionalization of its principles. In doing so, the author chose a functional approach to the disarmament of CW. It is the author's belief that focusing on the practical aspects of disarmament and on its effective results offers a credible perspective on the international law of arms control.

The political and legal foundations of the CW disarmament regime were examined in the first part of this study, followed by a close examination of the regime itself, which corresponds to the legally-binding disarmament provisions of the CWC. In accordance with the regime it can generally be noted that the disarmament of CW is well under way for the majority of CW possessors, and that the CWC has clearly succeeded in accounting for and verifying global CW capabilities. Declarations accurately report CW and CW facilities, and assign the disarmament task.

However, the CW disarmament regime is only partly successful in terms of effective disarmament results. The destruction of CW suffers many technical, financial and political difficulties, as the case of CW disarmament in Russia testifies.

The destruction of CW by the main possessors is now delayed and increasingly difficult. These delays and difficulties suggest both unrealistic planning and a greater disarmament task than that which the authors of the CW disarmament regime envisioned.

It can be concluded that the disarmament of CW by the main CW possessors will clearly not be achieved in accordance with the CWC obligations. Some key obligations, the CWC deadlines, the obligations of environmental protection or the irreversibility of the CW destruction process, will have to be compromised for CW disarmament to be completed. The disarmament of CW in strict respect of the CWC obligations is bound to fail.

The practical difficulties encountered with CW disarmament imply normative gaps in the CW disarmament regime. More specifically they highlight a gap between the theoretical aspects of the CW disarmament regime - the CWC provisions on disarmament-and the practical results - the destruction of CW capabilities. The gap between the CW disarmament regime and effective CW disarmament can be defined in terms of theory and practice, in accordance with the distinction adopted by the author.

The gap between practical and normative aspects of CW disarmament first appeared with the technical difficulties of disarmament, which were largely overlooked and unanticipated in the CWC. Its provisions on the technical matters related to disarmament (destruction methods, environmental and human safety requirements) are vague and superficial. The financial difficulties of disarmament suggest that the effort required for effective CW is greater than that which the CWC members had anticipated and is, to a certain extent, at odds with the political will that founded the CWC. This daunting financial burden suggests a reversed proportional relationship between the financial efforts (increasing) and the political will to disarm (decreasing). It can be noted that there is a legal vacuum concerning the financial aspects of CW disarmament. Both financial and technical difficulties can be designated as the main causes for the failure to disarm CW.

It is unclear whether these matters could have been foreseen during the CWC negotiations. It is possible that the political will to renounce and disarm CW prevailed over the specifics of CW destruction. However, the lengthy negotiation of the elaborate CWC verification system suggests otherwise. It can be submitted that disarmament is a highly technical matter calling for a specific negotiating forum, or

that an instrument focusing on the practical aspects of disarmament would be more adequate.

The gap between the theoretical CW disarmament regime and its application questions the chosen normative model for CW disarmament. The treaty-making process itself (the 'Geneva Process') of the CWC is not questioned, but whether the chosen type of instrument is appropriate to achieve effective disarmament results can be doubted. These doubts are expressed through the criticism of the participation in traditional, legally-binding multilateral instruments like the CWC, which is a central aspect of such instruments.

The experience of CW disarmament questions global participation in arms control instruments; more specifically it raises the matter of the utility of the participation of states not concerned with CW disarmament matters. There is clearly a conflict of interest between the majority of CWC member states which seek to protect interests related to their chemical industries and the six states concerned with CW disarmament. In light of the 2001 OPCW financial crisis and of the divergent objectives and expectations of CWC member states (mainly expressed with the criticism of the Australia Group), membership of disarmament instruments can be seen to conflict with the current level of state participation in the CWC. Although the CWC seeks universal adherence, the success of the disarmament regime is not determined by its number of member states.

It can be concluded from the experience with CW that disarmament supposes a selective, qualified membership based on the weapons capability of states. In the case of the CWC such participation is bound to be difficult since all states with a chemical industry are *de facto* involved in the control of chemical activities. It can be suggested, however, that without resorting to a discriminatory treaty with two categories of states, a two-step instrument is desirable. As CW possessors bear a specific responsibility for the disarmament of their CW capabilities, a separate disarmament regime applied to them can be envisaged, for example in the form of the provisional application of disarmament obligations.

The criticism of the normative model chosen for CW disarmament is also expressed with the lack of flexibility of the CWC. Because of the delays in CW destruction and the subsequent delays in complying with the CWC disarmament deadlines, an instrument more adaptable to changing circumstances appears necessary. If the CWC deadlines cannot be modified, its member states are faced with

a choice between acknowledging violations of the CWC, or the withdrawal of key CW possessors from the CW disarmament regime. In turn this would affect the credibility of the regime and postpone the completion of CW disarmament.

The criticism over the choice of disarmament instruments is raised again with the recent tendency to challenge the model of traditional, multilateral agreements as instruments for ensuring international security. However, a distinction is called for between the two criticisms. The first question sheds doubts on the ability of the CWC to deal with the practical aspects of CW disarmament. The second question challenges the ability of a disarmament instrument, any type of disarmament instrument but especially those founded on the Geneva Process, both to be successfully implemented, and to achieve its security goals. This criticism has severe implications that reach beyond the choice of a type of disarmament instrument. Finally this tendency is a reminder that the control of CW is also a political matter, and in that respect it is subject to contextual influence.

The choice and adequacy of traditional instruments like the CWC is questioned in the changing international security environment, both for their ability to complete their disarmament purpose, and for the ability of disarmament to fend off new threats to security. With regard to CW, disarmament is replaced with politically-binding, non-proliferation efforts, envisaged as alternatives to replace existing CW disarmament instruments. It results in an abandonment of the CWC as a primary tool for security, and reduces its role. This tendency, the potential 'desuetude' of traditional instruments,[1281] has serious implications for the credibility of the CWC and challenges the principle founding the CW disarmament regime: the usefulness of CW disarmament for international security.

In light of the difficulties of disarmament, if the CW disarmament regime fails because CW possessors are unable to meet their destruction obligations, the regime can legitimately be criticized for its weaknesses. The basic question remains the same; can the current international legal disarmament instruments achieve their goals? In this case, in spite of violations of some of the CWC's disarmament obligations, the successful disarmament of CW through the CWC, even though it is delayed, remains possible. The CWC can be criticized, but not for its inadequacy to address the threat it

[1281] Michael J Glennon, 'How International Rules Die' (2005) 93 (3), *Georgetown Law Journal,* 939-40.

was created for, as it serves its security purpose. By extension the CW disarmament regime, held accountable for security against the threat of CW, will be successful in completing the security objectives it was created for.

If the disarmament of CW fails because of the desuetude of the CW disarmament regime, the credibility of the legal norm controlling CW will be undermined. However, if the CW disarmament regime is discarded and disarmament operations suspended (or simply under-funded), none of the alternatives proposed can seriously be envisaged as a replacement or even credible complement to the existing CW disarmament regime. Furthermore, no alternative is proposed to replace disarmament as the permanent solution to the CW threat. As the negotiations of the CWC show, with the exception of imposed disarmament measures, which can only be envisaged in certain cases of threat to international security, there is no viable alternative to the current CW disarmament regime.

It can be concluded, firstly, that in case the CWC disarmament regime should fail in terms of its existing provisions, it should not be discarded, for lack of any suitable alternatives to replace it. The failure of strict compliance with the current CW disarmament regime is not tantamount to the impossibility of CW disarmament, and the implications to the difficult disarmament of CW that reach beyond the matter of compliance with legal obligations. In order to avoid the desuetude and eventual abandonment of the CWC disarmament norms, either efforts must be pursed to ensure compliance, or the norms must be modified to adapt to the current situation. Secondly, in spite of practical difficulties the CW disarmament regime progresses and remains in force. Failure to comply with the CWC disarmament obligations should not be grounds to discard the authority and utility of the entire CW control regime. Although some aspects of the framework of that regime can be criticized, its goals remain valuable.

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